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U.S. Department
of Transportation

**Urban Mass
Transportation
Administration**

UMTA-CA-06-0129-84-1
DOT-TSC-UMTA-84-9

Parking Permit Demonstration Project in Santa Cruz, California

**Final Report
April 1984**

**UMTA Technical Assistance Program
Office of Service and Management Demonstration
UMTA/TSC Project Evaluation Series**

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1. Report No. UMTA-CA-06-0129-84-1	2. Government Accession No. <div style="border: 1px solid black; padding: 5px; transform: rotate(-5deg); display: inline-block;">DEPARTMENT OF TRANSPORTATION DEC 10 1984 LIBRARY</div>	3. Recipient's Catalog No.	
4. Title and Subtitle PARKING PERMIT DEMONSTRATION PROJECT SANTA CRUZ, CALIFORNIA,		5. Report Date April 1984	
		6. Performing Organization Code DTS-64	
7. Author(s) George Rhyner, and Peter Webb		8. Performing Organization Report No. DOT-TSC-UMTA-84-9	
9. Performing Organization Name and Address Crain and Associates, Inc.* 343 Second Street, Suite A Los Altos, CA 94022		10. Work Unit No. (TRAIS) UM427/R4620	
		11. Contract or Grant No. DOT-TSC-1755	
12. Sponsoring Agency Name and Address U.S. Department of Transportation Urban Mass Transportation Administration Office of Technical Assistance Washington DC 20590		13. Type of Report and Period Covered Final Report May 1979-Sept. 1982	
		14. Sponsoring Agency Code URT-30	
15. Supplementary Notes *Under contract to: U.S. Department of Transportation Research and Special Programs Administration Transportation Systems Center Cambridge, MA 02142			
16. Abstract This report presents the results of a parking demonstration operated by the County of Santa Cruz, California and funded by the Urban Mass Transportation Administration. Under the project, on-street parking in portions of the residential area near the beaches required a permit. Area residents were given a limited number of free permits and allowed to purchase further permits for additional vehicles that they owned at a low fee. Non-resident permits were priced considerably higher to reduce the high level of traffic congestion and high occupancy rate in the on-street parking spaces prior to the demonstration. As an alternative during the first year of the demonstration, a free park-and-ride shuttle system was operated with standard 45' transit vehicles used to transport beach users from outlying parking lots to the beaches. The service was not offered during the second season of operation due to poor ridership. This report assesses the demand for each of the project elements and the effect of the project on local parking and traffic conditions. It also assesses the financial self-sufficiency of the project. Finally, it gives results from this demonstration that may be applicable to similar projects conducted elsewhere.			
17. Key Words Parking, Preferential Parking, Park-And-Ride, Shuttle Bus, Parking Congestion, Parking Permits, Parking Enforcement, Traffic Congestion, Regulation, Parking Fees		18. Distribution Statement DOCUMENT IS AVAILABLE TO THE PUBLIC THROUGH THE NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VIRGINIA 22161	
19. Security Classif. (of this report) UNCLASSIFIED	20. Security Classif. (of this page) UNCLASSIFIED	21. No. of Pages 168	22. Price

PREFACE

This report is part of the TSC Evaluation series for the UMTA Service and Methods Demonstration Program, U.S. Department of Transportation.

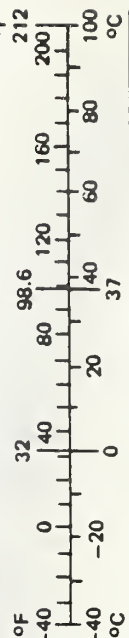
This report was prepared by Crain & Associates, Inc. at the request of the Transportation Systems Center under Contract DOT-TSC-1755. Santa Cruz County provided the data for the report and conducted surveys. The purpose of the project was to demonstrate the use of preferential parking to relieve parking and traffic congestion near recreational areas.

The TSC project manager was Larry Doxsey. The project manager for UMTA was Stewart McKeown. The project manager for Crain & Associates was Peter Webb. He was assisted by Charlie Cutten, Cindy Olander and George Rhyner. The report was typed by Richard Blinkal, Ana Chou and MaryJeanne McAteer.

The staff of Santa Cruz County were very helpful. The primary contacts at Santa Cruz County were the project managers, Neil McLaughlin, John Davis and Joe Wright. Much help was also provided by Tom Thompson and Barbara Browne of the accounting staff of the Santa Cruz County Department of Public Works and Ron Marquez of the Santa Cruz County Planning Department.

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures				Approximate Conversions from Metric Measures			
Symbol	When You Know	Multiply by	To Find	Symbol	When You Know	Multiply by	To Find
LENGTH				LENGTH			
in	inches	2.5	centimeters	mm	millimeters	0.04	inches
ft	feet	30	centimeters	cm	centimeters	0.4	inches
yd	yards	0.9	meters	m	meters	3.3	feet
mi	miles	1.6	kilometers	km	kilometers	1.1	yards
						0.6	miles
AREA				AREA			
in ²	square inches	6.5	square centimeters	cm ²	square centimeters	0.16	square inches
ft ²	square feet	0.09	square meters	m ²	square meters	1.2	square yards
yd ²	square yards	0.8	square meters	km ²	square kilometers	0.4	square miles
mi ²	square miles	2.6	square kilometers	ha	hectares (10,000 m ²)	2.5	acres
	acres	0.4	hectares				
MASS (weight)				MASS (weight)			
oz	ounces	28	grams	g	grams	0.036	ounces
lb	pounds	0.45	kilograms	kg	kilograms	2.2	pounds
	short tons (2000 lb)	0.9	tonnes	t	tonnes (1000 kg)	1.1	short tons
VOLUME				VOLUME			
tsp	teaspoons	5	milliliters	ml	milliliters	0.03	fluid ounces
Tbsp	tablespoons	15	milliliters	l	liters	2.1	pints
fl oz	fluid ounces	30	milliliters	l	liters	1.06	quarts
c	cups	0.24	liters	l	liters	0.26	gallons
pt	pints	0.47	liters	m ³	cubic meters	36	cubic feet
qt	quarts	0.96	liters	m ³	cubic meters	1.3	cubic yards
gal	gallons	3.8	liters				
ft ³	cubic feet	0.03	cubic meters				
yd ³	cubic yards	0.76	cubic meters				
TEMPERATURE (exact)				TEMPERATURE (exact)			
oF	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	oC	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature



1 in. = 2.54 cm (exactly). For other exact conversions and more detail tables see NBS Misc. Publ. 286, Units of Weight and Measures. Price \$2.25 SD Catalog No. C13 10 286.

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EXECUTIVE SUMMARY

During the summers of 1981 and 1982 the County of Santa Cruz, California conducted a preferential parking demonstration in the Live Oak Planning Area. This area is a densely populated but unincorporated section of the county located between the cities of Santa Cruz and Capitola. It contains several popular beaches which draw many users both from within Santa Cruz County and from the San Jose area, which is located approximately 25 miles to the northeast. This influx of non-resident beach users caused significant traffic congestion and parking problems prior to the demonstration. Many local residents who relied on on-street parking had difficulty finding spaces near their homes through much of the summer. In addition, there were large amounts of traffic traveling through the primarily residential neighborhoods in the area.

In order to solve these problems without restricting beach access a preferential parking program was instituted. Parking within a zone adjacent to the beach was restricted to vehicles with parking permits. The major elements of this program included:

- o A limited number of free permits issued to each resident for use on their own vehicles. These permits were also available to non-resident property owners and owners of local businesses.
- o Sale of additional resident and guest permits at a nominal price. In addition to the permanent permits for use on their own vehicles, residents could also purchase up to two transferable permits for use on their guests' vehicles.
- o Sale at a higher price of one-day and, in 1982, season permits for non-residents' vehicles. The revenue from the sale of these permits was expected to finance the majority of the project costs.

- o Provision of a park-and-ride shuttle service. This service provided free parking at two lots on the periphery of the permit zone and free shuttle buses to the beaches. These buses operated only in 1981 with 15 minute headways on weekends and 30 minute headways on weekdays.

The free resident permits were mailed to each residence in the zone. The guest permits and additional resident permits were available from the project office. Also available from the project office were the permits for non-residents. Additional sales locations for non-resident permits included field vendors selling from vans and enforcement vehicles and (during 1981 only) several local merchants. This system of permits and distribution worked quite well.

Demand for the resident and guest permits decreased greatly between the two years (from 10,738 resident and 319 guest permits being distributed in 1981 to 1358 resident permits and 136 guest permits in 1982). The major reasons for this decrease in demand were a vast reduction in the zone size (the 1982 zone contained less than one-fifth of the households in the 1981 zone) and a decrease from three to two free resident permits per household.

The demand for non-resident permits did not show this same decrease. In 1981 3936 day-use permits were sold. This number decreased only slightly in 1982 with 3323 day-use permits being sold (an additional 346 season permits* were sold in 1982). There were several changes made in the program in 1982 that tended to decrease day-use sales including: exemption of the section with the highest occupancy rate from the zone, removal of weekday enforcement and permit sales, and the sale of season permits. A major factor preventing a larger decrease in sales was a price decrease for day-use permits from \$5 in 1981 to \$3 in 1982.

The park-and-ride system had a low demand. The average ridership during the 1981 season was 194 passengers per day (5.1 passengers per bus round trip). Given the high cost of providing

*Season permits were not available in 1981.

the shuttle service, this demand was not high enough to justify operation of the park-and-ride system during the 1982 season. Several exogenous variables may have, however, reduced demand for the shuttle (and other elements of the project) below what it would normally have been. The most important of these was the weather which was consistently poorer than normal.

The project does appear to have significantly reduced the problems residents faced with parking and traffic. The parking space occupancy rate was significantly lower throughout the permit zone in 1981 on both weekdays and on weekends. On weekends in 1982 the area which remained in the permit zone continued to have a declining occupancy rate while the areas which were removed from the zone had an increase from 1981 in the weekend parking space occupancy rate. On weekdays in 1982 (when no permits were required even in the zone) all areas of the 1981 zone had a significant increase in the parking space occupancy rate over that experienced in 1981. Residents' opinions of both parking space availability and local traffic flow also reflected these changes.

Another goal of this demonstration was to provide a parking program that would be financially self-sufficient. The project achieved only mixed success in this area. In 1981 the project experienced a shortfall of over \$50,000 (37% of the costs which totaled \$146,862). In 1982 the shortfall was reduced to under \$14,000 (24% of the costs which totaled \$56,975). The 1982 revenue (which totaled \$43,146), while not being able to meet the total cost including annualized planning and start-up cost, was higher than that year's total operating expenses for the project. The major reasons for the large reductions in costs were the reduction in size of the permit zone, elimination of project operations on weekdays and elimination of the shuttle bus.

There are several conclusions from this project that may be applicable to similar projects being designed elsewhere. These include:

- o This parking program was most effective when it was confined to the areas and times with the largest impacts. Operating the program over large areas and at times with low demand was relatively cost inefficient.
- o The park-and-ride shuttle bus system failed to become an effective alternative to on-street parking, at least in part because of the long headways and travel times and the use of standard transit vehicles rather than vehicles designed specifically for this type of service. It is doubtful, however, that a large enough share of the beach users could have been attracted to this mode to justify the cost of a system with a higher level of service.
- o The spillover problems in Santa Cruz were minor. A zone only a few blocks wide was sufficient to discourage people from parking on adjacent streets and walking to the beach. However, this may be a larger problem in areas where parking illegally or discontinuing use of the attraction (in this case, the beach) are not perceived of as viable alternatives.
- o Although the parking permit program was very effective in reducing traffic and parking problems, it also reduced beach-usage while creating an adverse public reaction among local merchants and some non-resident beach users.

1. INTRODUCTION

1.1 BACKGROUND ON RESIDENTIAL PARKING PERMIT PROGRAMS¹

Most programs restricting non-resident parking in residential areas have been developed in response to the loss of parking spaces which are needed by area residents. The parking permit program constitutes the most widespread technique in the United States to prevent non-resident long-term parking. There are a number of possible variations on the parking restrictions in permit areas: e.g., non-residents may be allowed to park for limited time periods, non-residents may be prohibited from parking during certain hours, non-residents may be prohibited from parking altogether, or they may be required to purchase a parking permit, as in the Santa Cruz project. Parking permits are generally distributed to residents free or at a nominal charge to offset administrative costs. The permits are displayed in the window or pasted to the bumper of the vehicle. Enforcement costs are offset by revenues from violations and in some cases, from sales of day-use permits to non-residents. The parking permit program may be combined with one or more other devices, e.g., provision of off-street parking and/or a transit alternative to the automobile, such as a shuttle bus or van. In theory, these elements in combination create an incentive for most non-residents to utilize alternatives to auto travel and parking within the restricted area.

Problems with permit programs may arise over program boundaries; for example spillover effects to the areas adjacent

¹Much of the background material which follows is drawn from The Restraint of the Automobile in American Residential Neighborhoods, Simkowitz, Heder and Barber, UMTA/TSC Project Evaluation Series, May 1978. For a more detailed examination of residential parking permit programs, the reader is referred to this document.

to the permit area may create problems for residents of these adjacent areas. In addition, the issue of visitor permits is often problematic. Parking privileges must be accorded to non-residents visiting the permit area for business (doctors, repair people) or pleasure (guests) via a system which is variable, yet which does not invite widespread abuse. Despite such problems, residential parking permit programs have generally proved successful in reducing non-resident traffic and increasing the supply of parking available to residents of permit areas.

1.2 PROJECT OVERVIEW

Santa Cruz County, located on the northern and eastern shores of Monterey Bay in California, has approximately 188,141 permanent residents. A large seasonal influx of summer residents and visitors occurs during the summer months and other recreational periods; a special 1965 Census indicated that the permanent population increased by approximately 30% in some urban areas, and up to 75% in some rural areas. As a result, certain residential areas adjacent to the County beaches have experienced long-standing traffic and parking problems during peak periods.

In response to complaints from residents of the Live Oak area of the County (immediately east of the city of Santa Cruz), the Department of Public Works applied for a Service and Methods Demonstration (SMD) Grant (No. CA-06-0129) from the Urban Mass Transportation Administration (UMTA) in the amount of \$319,700. During the demonstration, street parking within the permit zone required a permit from May through September. Residents of zone and local business were given free permits.

During the first summer the program was in operation (1981) non-residents had the choice of either buying a day-use permit for \$5.00 and parking near the beach or parking in an outlying lot and riding a free shuttle bus to the beach. However, due to low ridership, the shuttle bus was eliminated from the project for the second summer (1982). Other major changes made for the second summer included decreasing the price of the day-use permit

from \$5.00 to \$3.00, reducing the size of the permit zone, limiting the program to weekends and holidays, and instituting a non-resident season permit.

A companion demonstration project in Hermosa Beach--located in the southwest corner of Los Angeles County, California--which has many of the same features, was first implemented in the summer of 1981 and will continue at least through the summer of 1983. The Hermosa Beach project also dealt with the problems local residents face in trying to park on the street near their homes caused by a large influx of beach users. A preferential parking permit program and shuttle-bus system very similar to Santa Cruz's, was used there to try and solve these problems. However, there are several important differences between the setting of Hermosa Beach and the Live Oak area. One very apparent difference is that while the Live Oak Area has heavy development in some parts, the entire area within a few blocks of the beach is heavily developed in Hermosa Beach. Also, unlike the Live Oak Area, the streets in the impacted zone in Hermosa Beach all have curb and gutters and well defined parking spaces. Hermosa Beach is located within a heavily populated section of Los Angeles County. The average travel time for non-resident beach users is much shorter there. Finally, unlike the Live Oak area which had few parking regulations that were not vigorously enforced prior to the demonstration, Hermosa Beach has long had a reputation for strict enforcement of its numerous parking regulations. In addition, there were differences in the implementation of programs (e.g., Hermosa Beach had several injunctions placed on their program) and specific program elements (e.g., Hermosa Beach does not issue any free permits).

1.3 PROJECT OBJECTIVES

Originally the major objectives of this demonstration project were to reduce traffic and parking congestion attributable to summer beach users who are not residents of the permit zone, and to encourage beach access via a park-and-ride system

originating just outside the permit zone. The intent of the demonstration was not to eliminate all non-resident traffic and parking, or to reduce beach use in the target area. An additional demonstration objective was to create a financially self-supporting system through the sale to non-residents of parking permits, priced sufficiently to encourage utilization of the park-and-ride system.

1.4 PROJECT INNOVATIONS

The demonstration was conducted to test two innovations:

1. Parking permits were distributed to residents and sold to non-residents of the permit zone; and
2. A park-and-ride shuttle bus system originating outside the permit zone provided service to the beach area.

Two weeks prior to the start of the 1981 season three free resident permits were mailed to each identified household within the zone. (In 1982, each address received just two free permits.) Residents were also able to buy additional resident permits and up to two transferable guest permits each season. One-day permits were sold to non-residents through a local project office, kiosks located at the park-and-ride lots, several retail outlets located within the permit zone, and two vans situated at Twin Lakes State Beach--the most popular beach area within the permit zone. (In 1982, a significant reduction in permit sales outlets was effected.)

During the 1981 season two park-and-ride lots were available within the project area. Free shuttle bus service from these lots to the beach area was furnished by two 28-passenger buses (leased from the County Transit District) operating on two routes with 30 minute headways on weekdays. On weekends and holidays a third bus was added and the headways on the more heavily traveled route were reduced to 15 minutes. Due to high costs and low ridership the shuttle bus service was discontinued in 1982.

1.5 ORGANIZATIONAL ROLES

The Urban Mass Transportation Administration (UMTA) awarded the demonstration grant to the County of Santa Cruz; UMTA approved and monitored project contracts and expenditures.

The County of Santa Cruz, as grant recipient, was responsible for administration and budgetary control of the project; budgeted project personnel included a full-time Project Director and a Seasonal Field Coordinator. The grantee was also responsible for providing the evaluation contractor with the data required to evaluate the project.

The Urban Institute, under contract to UMTA, provided technical assistance and support to the County.

The Transportation System Center (TSC), of the U.S. Department of Transportation, contracted for monitoring and evaluation of the project. TSC specified the desired form, scope and budget of the evaluation; provided technical supervision to the evaluation contractor; and reviewed evaluation products.

Crain & Associates, as evaluation contractor to TSC, was responsible for preparing an Evaluation Plan, specifying data collection requirements, developing a schedule of data collection efforts and evaluation tasks within a budget established by TSC, monitoring and reviewing data collection, designing and performing data analysis, and preparing evaluation reports.

1.6 EVALUATION ISSUES

The evaluation investigated the extent to which the parking permit program succeeded in achieving its goals. The primary goal was to reduce parking and traffic congestion in residential neighborhoods within the permit zone. This would have been a relatively simple goal to achieve if it were the only goal. A substantial fee for parking in the target area or even an outright ban on non-resident parking would all but eliminate congestion. However, two related project goals necessitated a more carefully structured program.

The first of these was to reduce congestion without discouraging beach use. The shuttle bus system from nearby park-and-ride lots was expected to play a large role in achieving this goal. It was hoped that a substantial portion of the non-residents of the permit zone would shift their mode of reaching the beach (at least at the end of the trip) to the park-and-ride system. Several other options available to the non-residents were also recognized during the planning phase of this project. These included continuing to park in the permit zone and either paying the day-use fee or running the risk of being fined for parking illegally, or going to other beaches outside the permit zone. The impacts of non-residents exercising each of these options are addressed in this evaluation.

The second related project goal was to make the program financially self-sufficient. Once the project is determined, this becomes essentially a pricing issue, involving setting day-use permit prices high enough to generate sufficient revenue, but not so high as to cause all who do come to the beach to use the park-and-ride system. To a certain extent, this goal conflicts with the other two as financial self-sufficiency requires that some non-residents continue to park in the permit zone. This "trade-off" was an important issue in the evaluation.

A parking permit program such as the one being evaluated here or the companion demonstration in Hermosa Beach may have reduced congestion in one area at the expense of increasing it in another. It was therefore important to focus attention on the perimeter of the permit zone as this was the most likely place for any spillover effects of the permit program. There was also the possibility that congestion on the residential streets bordering the beaches would not decrease significantly, since these were the most desirable parking areas for beach users, especially non-residents purchasing day-use permits.

Finally, the issue of perceptions must be addressed. In contrast to actual changes in traffic congestion, residents' perceptions (which presumably inspired the demonstration originally) may be quite different. Simply having a permit program

may have caused people to perceive less congestion. On the other hand, the inconvenience of obtaining resident and guest permits may have caused a modest reduction in congestion to be interpreted as "not worth it", leading to perceptions of no change at all. This issue was also treated in the evaluation.

2 . DEMONSTRATION SETTING

2.1 GEOGRAPHIC AND DEMOGRAPHIC CHARACTERISTICS²

2.1.1 Santa Cruz County

Santa Cruz County is located on the northern and eastern shores of Monterey Bay in northern California, 74 miles south of San Francisco and 375 miles northwest of Los Angeles. (See Figure 2-1.) The County, which covers 441 square miles, had a 1980 population of 188,141 permanent residents. During the period from 1970-1980, the annual rate of population growth in Santa Cruz County was 4.3%, more than double that of California as a whole, as Table 2-1 shows.

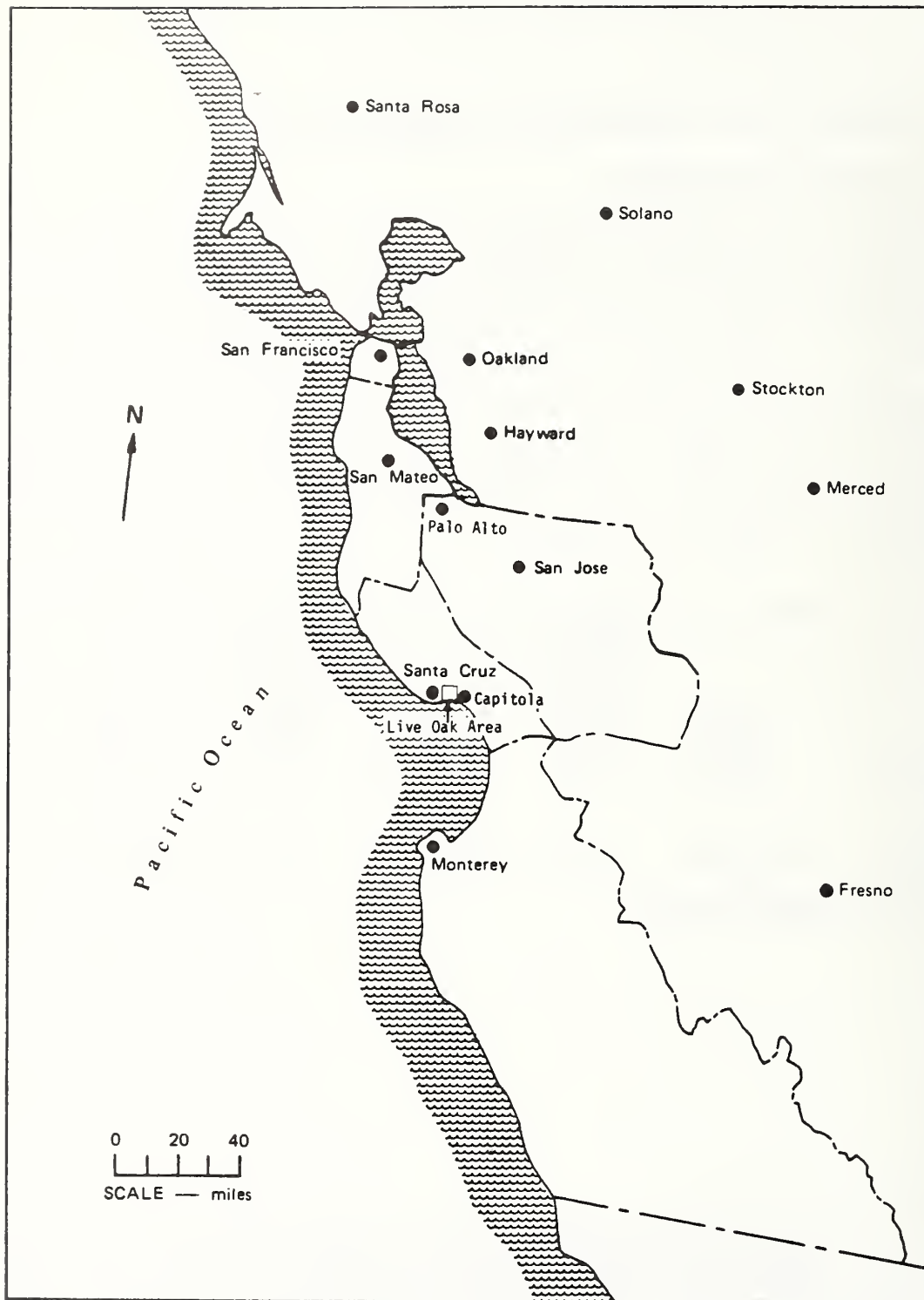
TABLE 2-1. COMPARISON OF POPULATION GROWTH RATES

	<u>1960</u>	<u>1960-70 Annual Growth Rate</u>	<u>1970</u>	<u>1970-80 Annual Growth Rate</u>	<u>1980</u>	<u>1960-80 Annual Growth Rate</u>
Santa Cruz County	84,219	3.9%	123,790	4.3%	188,141	4.1%
California	15,720,869	2.4%	19,957,304	1.7%	23,667,902	2.1%

Source: U.S. Census Bureau

²Much of the ensuing discussion draws heavily upon three source documents: Santa Cruz County Growth Trends, prepared by Gruen, Gruen & Associates and the Community Resources Agency of Santa Cruz County, November 1977; the Live Oak General Plan, prepared by the Community Resources Agency of Santa Cruz County, October 1977; and Community Economic Profile, prepared by the Santa Cruz Area Chamber of Commerce, June 1979.

FIGURE 2-1. LOCATION OF SANTA CRUZ



As Santa Cruz is one of California's most popular seaside resort areas, tourism is a major industry, including a growing convention business. A large seasonal influx of temporary residents and visitors occurs during the summer and other recreational periods: a special County Census taken in 1965 indicated a seasonal population increase of 30% in some urban areas and up to 75% in some rural areas. In addition, the University of California campus in Santa Cruz, opened in 1965, has a current enrollment of approximately 6,000 full-time students.

The median income of Santa Cruz County residents in 1980 was \$12,246, well below the state median for that year of \$13,750.³ The major economic activities of the County are centered in two distinct geographic areas: agriculture is the dominant industry of the Pajaro River Valley region near Watsonville (15 miles east of the city of Santa Cruz); whereas service, tourist and recreational activities dominate the city of Santa Cruz and the surrounding areas.

The topography of the County is rolling; narrow canyons extend from the coastal shelf along the shoreline to the ridge line of the Santa Cruz Mountains, near the Santa Clara County line. The Santa Clara Valley (including San Jose), accessible by Highway 17, is a major source of tourist and recreational traffic to the County. About 10% of the land area of Santa Cruz County is devoted to State parks, several of which are within or adjacent to the Santa Cruz city limits. Within the city, the "boardwalk"--an amusement park and recreational area bordering the beach--is a major tourist attraction.

³Source: California State Franchise Tax Board.

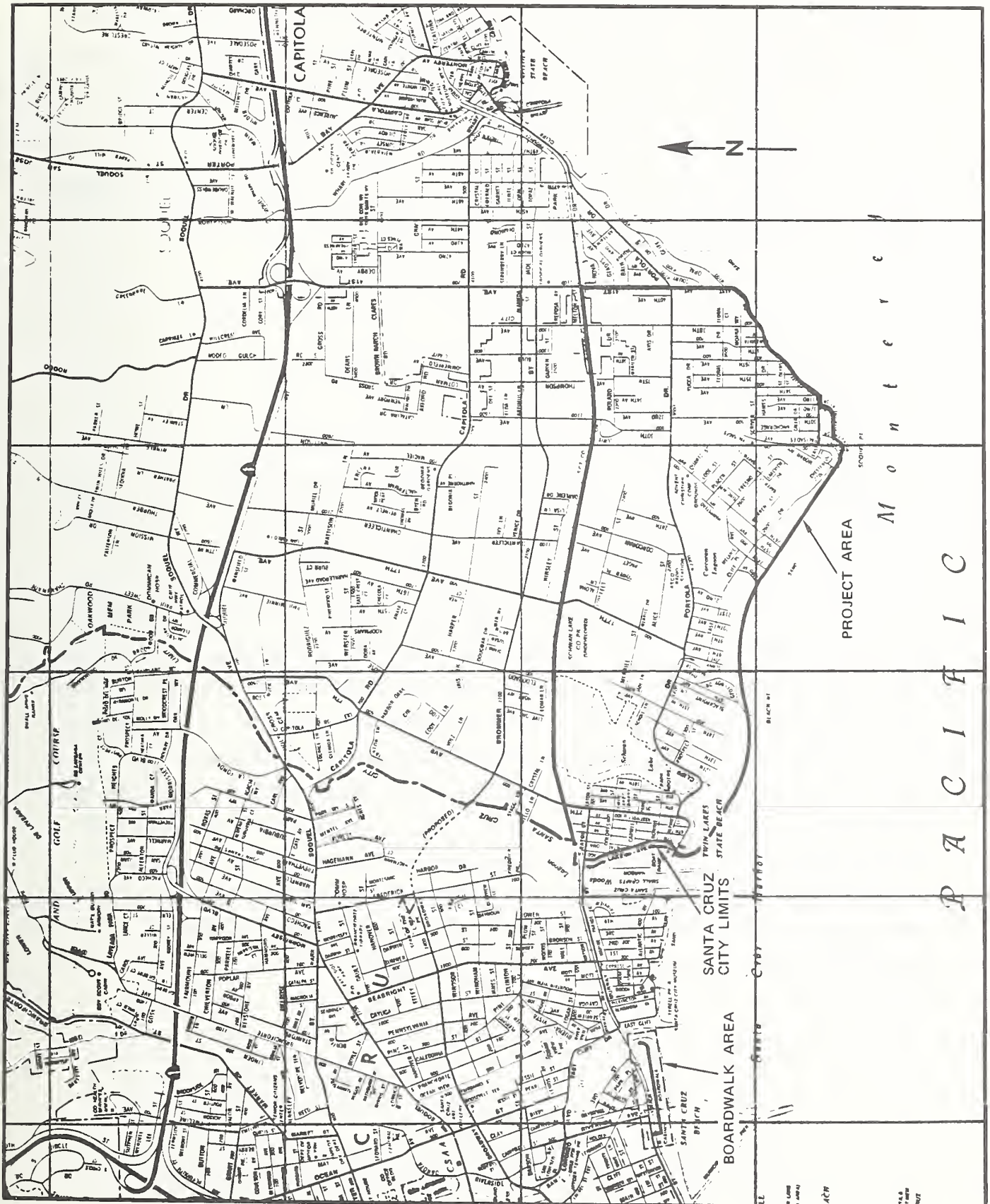
Due to its proximity to the ocean, the Santa Cruz area is characterized by mild temperatures.⁴ The mean maximum temperature range is in the middle 70s from June through October, dropping to around 60 in the winter months. Prolonged hot weather--over 90 --is rare. Mean minimum temperatures range from 38 in January to 50 in July and August. Rainfall averages 31 inches per year, more than 90% of which falls in the six months from November through April. For the most part, summer precipitation is limited to occasional drizzle and morning fog, which generally (but not always) burns off by late morning. Periods of heavy fog occasionally last for several days at a time during the summer, keeping maximum temperatures in the 50s and 60s and making for generally unpleasant conditions along the beaches through mid-afternoon or even all day. Beach use in this area is greatly effected by weather conditions, especially fog. Thus, heavy beach usage, and the consequent parking problems, are limited largely to sunny weekend days during the summer.

2.1.2 The Project Area

The project area covers roughly three square miles, and is located within the Live Oak planning area of the County. The Live Oak planning area, which covers 542 square miles, is a largely residential area situated between the cities of Santa Cruz and Capitola in the urban corridor adjacent to Monterey Bay in northern Santa Cruz County. Figure 2-2 shows the location of the project area. As the figure shows, the project area does not overlap the central business district of the city of Santa Cruz, nor does it include the highly popular boardwalk and amusement park. Along the coastline of Live Oak, which extends for 3.4 miles, are seven major beaches and approximately 15 access points to the beaches and to surfing areas. According to a four-day

⁴The following climatic summary is based upon The Climatological Summary published by the National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

FIGURE 2-2. PROJECT AREA*



*Map copyrighted 1979 by the California State Automobile Association. Reproduced by permission.

survey taken in August 1976, Live Oak beaches--which comprise 8% of the total beach area of the County--accounted for 22% of total county beach use. Parking is limited at many of these locations.

The Live Oak area had a 1980 population of 21,025 or 11% of the total population of Santa Cruz County. While Live Oak is large enough to constitute a city in its own right, it is an unincorporated urban fringe area; as such, it has been developed somewhat haphazardly and regulated by conflicting land use policies over the last decade.

2.2 TRANSPORTATION CHARACTERISTICS

2.2.1 Highways and Roads

Santa Cruz County is served by four major inter-regional highways. Two of the routes experience heavy weekend recreation traffic, especially during the summer tourist season. The Live Oak planning area is served by one major freeway and by four arterials which provide east-west movement; four other arterials provide north-south movement. The population is difficult to serve with public transit due to the dispersed nature of residences and commercial facilities in Live Oak. Auto travel is therefore a near-necessity. The local road service is limited, however, and congestion along major arterials is common. In 1977, an estimated 146,000 trips per day were made in and out of Live Oak. Within the project area are a number of "no parking" zones, designated by signs. However, enforcement of parking regulations along the beach area was minimal prior to the demonstration. As a result, parking on private property was a continual problem for residents of the area.

2.2.2 Public Transit⁵

In Santa Cruz County, 3% of total trips are served by public transportation. The Santa Cruz Metropolitan Transit District (SCMTD) was formed in 1968 to provide public transportation in the Santa Cruz, Capitola, and Live Oak areas. Since that time, the transit district boundaries have been expanded considerably. The service area became county-wide on January 1, 1979. The system operates 35 peak period buses along 46 routes. In fiscal year 1981-82, SCMTD carried an estimated 30,700 passengers per weekday. Vehicle miles of service provided totalled 3,617,955 for that period. Transit ridership has been generally increasing since 1970 due to a variety of factors, including expansion of the service area, service improvements and increased student ridership.

The fare schedule for SCMTD is shown in Table 2-2. Ten-ride tickets and passes are available to SCMTD riders as an alternative to paying cash fares. In addition, the University of California and Cabrillo College have a contract fare which allows students to ride the bus by presenting their I.D. cards to the drivers. Businesses that sell SCMTD tickets and passes are located throughout Santa Cruz County.

Although the project areas is served by six SCMTD transit routes⁶, transit service to most of the Live Oak planning area is only fair. Almost the entire area is located within one-quarter mile of an existing transit route, and most routes operate with an hour headway. An estimated 4% of all transit trips made in the county originated or ended in the project area in 1982.

⁵This discussion is drawn from Transportation System Management Element, Association of Monterey Bay Area Governments, September 1979 and Short Range Transit Plan, Santa Cruz Metropolitan Transit District, February 1983.

⁶One of these operates only at night; the other five SCMTD routes operated during the daytime including the hours that the project shuttle operated.

The Twin Lakes Beach area is, however, served by three of the daytime routes. This provides service every fifteen minutes from downtown Santa Cruz to the beach area. Despite frequent service and low fares, very few of the current beach users commute to the beach by bus.

3. PROJECT DEVELOPMENT AND OPERATIONS

3.1 THE GRANT APPLICATION PROCESS

In the summer of 1977, Santa Cruz County was first approached as a potential site for an UMTA Service and Management parking pricing/permit demonstration. Throughout the following year, a preliminary study was conducted by the County to determine the feasibility of such a project; community meetings were held to assess the level of political support for a permit program in various neighborhoods. The Chairman of the County Board of Supervisors spearheaded the effort to obtain support for the demonstration in the Live Oak area. As a result, in the fall of 1978, the Board passed a resolution to submit a preliminary application to UMTA for a parking pricing and shuttle bus demonstration; the application was submitted soon thereafter. In March 1979, with the assistance of the Urban Institute, the County submitted a final application requesting Federal funding in the amount of \$319,700 for the two-year demonstration. UMTA awarded the grant to the County of Santa Cruz, which approved the grant documents on September 25, 1979. The demonstration ran for two summers: June 26, 1981 until September 7, 1981, and May 29, 1982 until September 26, 1982.

3.2 PROJECT DESIGN AND EVOLUTION

3.2.1 Overview of the Project

The demonstration project had two basic elements, one being the park-and-ride shuttle and the other the parking permit program. In the first year of the project both elements were operated on a relatively large scale, while during the second summer the parking permit zone was greatly reduced in size and the park-and-ride shuttle was eliminated altogether.

In addition to the reduction in size of the permit zone area, the parking permit program during 1982 differed from the 1981 program in several other ways. These included operation of the program on weekends and holidays only (in 1981 the program operated seven days a week), a reduction in price from \$5.00 to \$3.00 for day use permits and the addition of a seasonal permit for non-residents. These changes had a large impact on the success of the project, greatly reducing the cost of administering the project while increasing its public acceptance.

3.2.2 Project Schedule

The demonstration consisted of three phases: a pre-implementation phase, a start-up phase, and an implementation and evaluation phase. Phase I, the pre-implementation phase, began in the summer of 1979 and involved a number of community activities designed to inform residents of the project and solicit their input to the program design, including resident permit policy, permit prices, non-resident parking areas, and related issues. "Before" data collection activities were also conducted during Phase I.

Activities conducted during Phase II, the start-up phase, included establishing the details of the permit program; design and printing of permits; arranging for shuttle buses and routes; finalizing the leases for the parking lots; obtaining enforcement vehicles; arranging for the sale of permits; generating project publicity and signing the area. While this phase began in the fall of 1979 as originally scheduled, numerous delays caused it to be extended well beyond early 1980, when it was originally scheduled to end. Much of the extra time was spent solving problems encountered in gaining the necessary approvals from regulatory agencies and in scheduling public meetings. The details of the program could not be established until after the necessary approvals were obtained and the County Board of Supervisors passed an ordinance establishing the district. The ordinance was not passed until August 12, 1980, at which time it was too late to implement any program that summer. Thus, the

program was effectively pushed back an entire year by delays in the approval process of only several weeks. During the winter and spring of 1981 the parking lots were graded, the enforcement vehicles were delivered, signs were put up and the project personnel were hired.

On June 26, 1981 Phase III, the implementation and evaluation phase, began. Throughout the summer adjustments were made to the project as they became necessary. One of the most important changes was the exclusion of East Cliff Dr. near the Twin Lakes State Beach from the permit zone. (East Cliff is the main East-West road through the permit zone and runs immediately adjacent to most beaches in the zone including Twin Lakes. A substantial amount of close-in beach parking is along this road.) This change was made in response to objections to the program from county residents who lived outside the zone. The implementation of the change was delayed until August 17 so that the 1981 data collection activities could be completed before the program was modified. The 1981 season ended on September 7 (Labor Day).

Between the summers of 1981 and 1982, numerous changes were planned and incorporated into the project, including the elimination of the park-and-ride system, further reduction of the permit zone size and the discontinuation of the weekday operation of the program. These changes were approved by the County Board in May, 1982. The 1982 permit program began on May 29th and, with no subsequent major changes, continued until September 26th.

Listed below is a summary table of the major project events and dates on which they occurred.

Preliminary grant application submitted	January 1979
Final grant application submitted	March 1979
Grant award	September 1979
First round of before data collection	August 18-26, 1979
County Planning Commission approves project	April 1980
Coastal Commission approves project	May 1980
Final public meeting held	May 29, 1980
County enabling ordinance receives preliminary passage	July 22, 1980
Second round of before data collection	July 28-August 12, 1980
County enabling ordinance receives final passage	August 12, 1980
Funding approved by Board of Supervisors	August 19, 1980
Construction of the main park-and-ride lot	February and March 1981
Delivery of enforcement vehicles	March 1981
Field office starts operations	April 1981
Project personnel hired	March-May 1981
Signs installed	June 1981
Parking program begins	June 26, 1981
First year data collection	July 27-August 23, 1981
East Cliff Dr. near Twin Lakes Beach removed from permit zone	August 17, 1981
First summer of program concluded	September 7, 1981
Project revisions proposed to County Board of Supervisors	April 20, 1982
Project revisions approved by County Board of Supervisors	May 1982
Second summer of parking project starts	May 29, 1982
Second year data collection	August 3-15, 1982
Demonstration concluded	September 15, 1982

3.2.3 Administration

During the initial planning phase, the demonstration project was under the control of the Santa Cruz County Planning Department. The Department of Public Works (DPW), however, assumed primary responsibility for the administration of the project during the final planning and implementation phases. A project director, a staff assistant and a field supervisor were hired by DPW to take direct control of the project. Also hired for the first summer were six permit sellers, six enforcement officers and two clerks. For the second summer three enforcement officers and two clerks were hired due to the reduced scope of the project (these employees also sold permits part time). Only the project director was employed year around, the others being hired before each summer. There was a change in project directors between the first and second summers. Most other staff positions were also filled with new people for the second year of the demonstration.

While DPW was in direct charge of the project, the amount of flexibility they could exercise in setting project details was often severely limited by rules and regulations emanating from other agencies. In fact, the local project director documented having to work with 22 separate government entities during the project planning phase. These ranged from county government departments (e.g., Planning and Finance) to city governments (including Santa Cruz and Capitola) to law enforcement bodies (city, county and state) to state agencies (including the Department of Motor Vehicles and the Coastal Commission). This often made coordination extremely difficult as well as causing frequent delays while one or more entities reviewed plans and revisions. In addition, DPW was also constrained by the need to clear any substantive changes in the program with UMTA since this was a demonstration project.

Two examples of conflict between governing bodies with regulatory power over the demonstration will serve to highlight the severity of planning difficulties. There were many more.

The first example concerned establishment of methods for selling day-use permits near the beach. The State Coastal Commission would not allow any permanent structures to be erected in the vicinity of public beaches without a prohibitively lengthy approval process. On the other hand, the County Auditor would not allow money to be handled at "unsecured locations". After much debate, a compromise was arranged whereby vans were used.

A second example involved a conflict between Santa Cruz County and UMTA over the release and expenditure of project funds. Santa Cruz County policy requires that all outside funds be physically in hand prior to any encumbrance of them. The terms of the grant from UMTA, as do all SMD grants, limit the advancement of funds to no more than 30 days prior to actual expenditure. These two policies came in conflict when it was necessary to sign contracts for the preparation of the 17th Avenue park-and-ride lot. Since two of the contracts required lead times in excess of two months, UMTA would not advance the funds nor would the County encumber them. Eventually, UMTA agreed to advance the funds but not before a considerable amount of time and energy was spent seeking a resolution satisfying both the policy of the County and the terms of the UMTA grant.

In addition to problems such as these, the agencies involved in the program and many Santa Cruz County residents, from both inside and outside the permit zone, expressed either strong support or opposition to the program. Many persons located inside the zone did not like the idea of having to pay for guest permits. Local businesses were very worried about the impacts on their sales. The county residents living outside the zone expressed the strongest opposition. Many expressed the opinion that since they paid taxes to the County, they should be able to park on County roads for free. Also, many people felt that the program denied free access to the beaches which California law guarantees. Both the DPW staff and County Board were well aware of the political tensions associated with the parking situation and were very careful to include public opinion in making their decisions.

3.2.4 The Project Area

The project area is shown in Figure 3-1. The area is bounded by the Santa Cruz Yacht Harbor to the west, the Pacific Ocean to the south, 41st Avenue to the east and the Southern Pacific railroad tracks to the north. Within the project area, Figure 3-1 shows the boundaries of each year's permit zone (the area within which permit parking was enforced) and the sites for the park-and-ride lots used during 1981. Selection of the original permit zone was based upon analysis of aerial photographs and maps, property counts, auto counts, off-street parking statistics and interviews with residents. Figures 3-2 and 3-3 show two of the crowded beach parking areas within the permit zone and some of the beaches in the area. As the pictures indicate, the coastline is irregular; outside the Twin Lakes State Beach area, most beach entrances consist of steep, narrow paths and occasional wooden stairways leading from the street to the beach. In most parking areas along the beach, parking spaces are not clearly defined; as a result, prior to the demonstration cars tended to be parked (and at peak periods, double-parked) at various angles along the street. Because the supply of parking spaces adjacent to the beach is limited, non-resident parking along nearby residential streets and on private property in the permit zone during the summer months has posed continual problems for residents over the years.

FIGURE 3-2. PREDEMONSTRATION PARKING





FIGURE 3-3. LIVE OAK AREA BEACHES

The boundaries of the permit zone were changed several times during the demonstration. In the original planning phases, the zone was expected to be only slightly larger than the 1982 boundaries. However, complaints received from residents who would be just outside the zone and were worried about spillover effects caused the boundaries to be expanded to include a much larger area. Even after the start of the program, a small area north of Eaton St. (see Figure 3-1) was added to the zone at the request of the residents. Also, during the first summer the section of East Cliff Dr. between the Yacht Harbor and Schwan Lake, which is next to the popular Twin Lakes State Beach, was removed from the permit zone. This was done in response to complaints from Santa Cruz County residents who resided outside the zone but felt they had a right to park free near the beach and from merchants at the Yacht Harbor who claimed the program was hurting their business. The County Board of Supervisors felt this was an appropriate compromise as very few residences face this section of East Cliff Dr.

Prior to the 1982 season, the permit zone was greatly reduced in size. Complaints from area businesses (who felt that the parking restrictions were hurting business), the lack of any detectable spillover problems and a desire to reduce unnecessary costs led to the elimination from the zone of areas with relatively low parking demand. The areas eliminated were those along the north edge (farthest from the ocean) and the west end. The beaches along the west end are surrounded by large cliffs which make them relatively inaccessible to the general public. This has kept them from becoming popular with swimmers, although they are popular with many surfers. Thus, given the apparent absence of any appreciable spillover, this end of the permit zone did not have as large a parking problem as the area near the more accessible beaches.

3.2.5 Permits

During the 1982 season there were six types of valid parking permits. These were resident, guest, day-use annual visitor, business and special event. All of these permits, except the annual visitor, were also available in 1981.

Prior to the 1981 season each of the approximately 3300 legal residences* within the permit zone was mailed three free resident permits. Additional resident permits cost \$10 each and were available from the project office upon proof of residency and vehicle registration. A total of 10,680 free resident permits were distributed during 1981 and an additional 58 were sold. These permits were stickers and were permanently affixed to the rear bumper of the vehicle (see Figure 3-4). In 1982 the number of free resident permits per household was reduced to two and only 654 residences were included in the smaller zone. The price of additional permits was also reduced to \$5.00 before June 1 and \$7.50 thereafter. Only 1,308 free permits were distributed in 1982 and 50 additional resident permits were sold. Window stickers were used during this season to facilitate their removal by residents at the end of the season.

Residents were also able to purchase guest permits. These permits were transferable cards to be placed on the dashboards of visitors' cars while they were parked in the permit zone and returned to the resident before leaving. A limit of two guest permits per household could be purchased at the same price as resident permits (\$10 in 1981; \$5 before June 1 and \$7.50 thereafter in 1982). A total of 319 guest permits were sold in 1981 and 136 were sold in 1982.

Non-residents of the zone were able to purchase day-use permits. These permits cost \$5 in 1981 and \$3 in 1982. In 1981

*Because a pre-sorted carrier route mailing was used in 1981 and the postal routes did not exactly coincide with the zone boundaries, a small number of additional residences outside the permit zone also received permits.

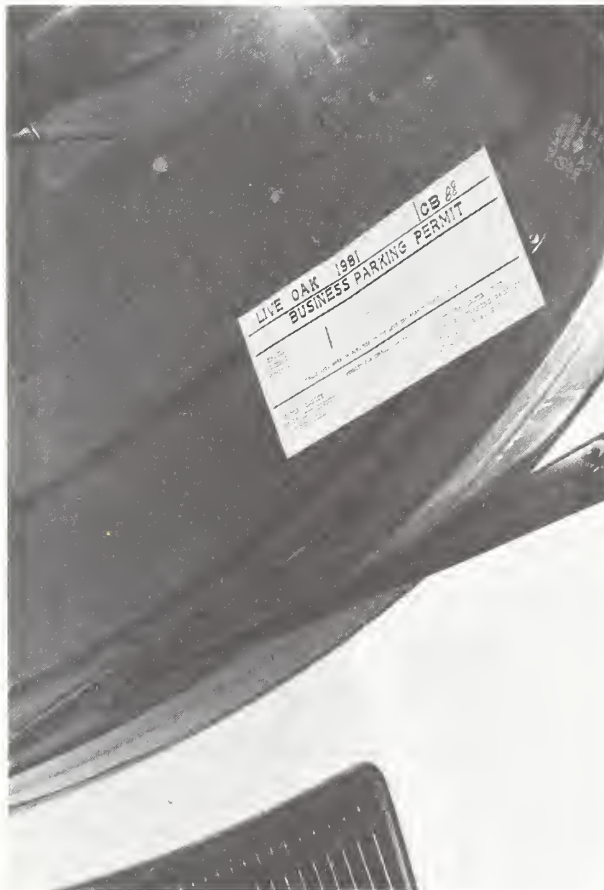
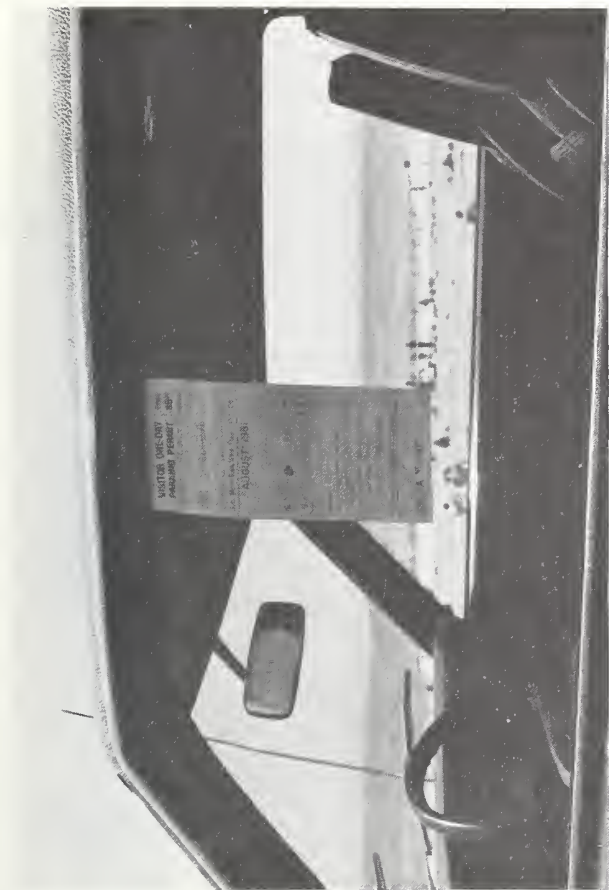
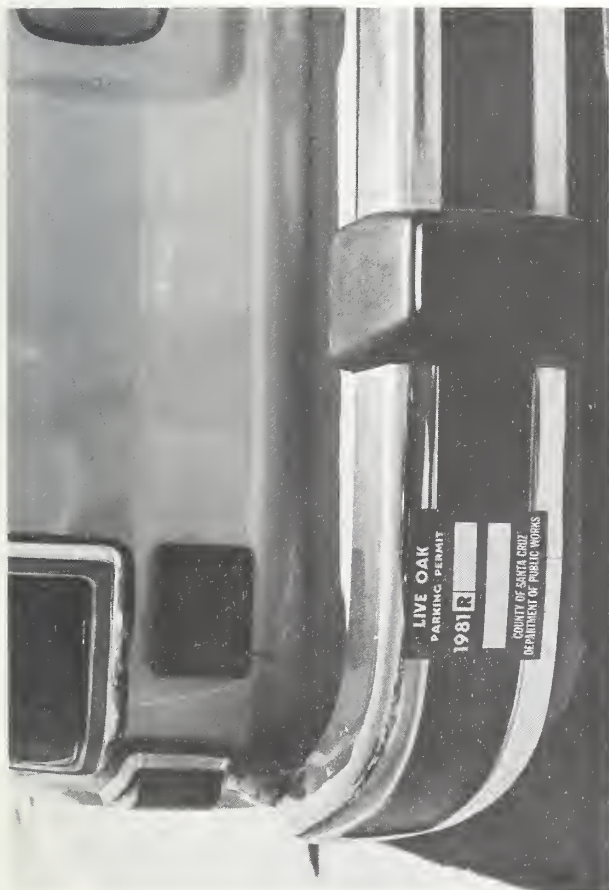


FIGURE 3-4. PARKING PERMITS

they were sold at kiosks located at both parking lots, from vans stationed near Twin Lakes State Beach, from the project office on 17th Street and by local merchants. In 1982 they were sold from enforcement vehicles (prior to starting their rounds), from kiosks and from the project office (see Figure 3-5). These permits were cards which were hung from the driver's window (see Figure 3-4). In order for the permit to be valid the license number of the vehicle had to be filled in and the date punched out. A total of 3,936 day-use permits were sold in 1981 and 3,323 in 1982. In 1982 non-residents were also able to buy season permits. These permits were windshield stickers and sold for \$10 prior to June 1 and \$20 thereafter. A total of 346 were sold (167 through field sales and 179 through mail order and project office sales).

There were two types of permits available to businesses located in the zone. Permanent stickers, similar to resident permits, were available each year to owners of local businesses. In 1982 these permits were also available to employees of the businesses*. Transferable permits were available to businesses for use by their customers. These were used much in the same way as guest permits and were only valid near the business to which they were issued. All business permits were issued free of charge upon application to the project office.

The last type of permit that was available was the special event permit. These permits were issued for one-time events such as church picnics and yard sales. These permits were also issued free of charge upon application to the project office. Very few of these permits were issued and records were kept to prevent any misuse of the permits (e.g., getting permits for a large wedding reception all weekend, every weekend). Table 3-1 is a summary of the permit distribution system. For each type of permit, for both 1981 and 1982, the table shows eligibility requirements, free permits allowed, price where applicable, display method, method of distribution, and number distributed.

*In 1981 each employee could purchase one resident permit. Very few employees, however, purchased permits this year.

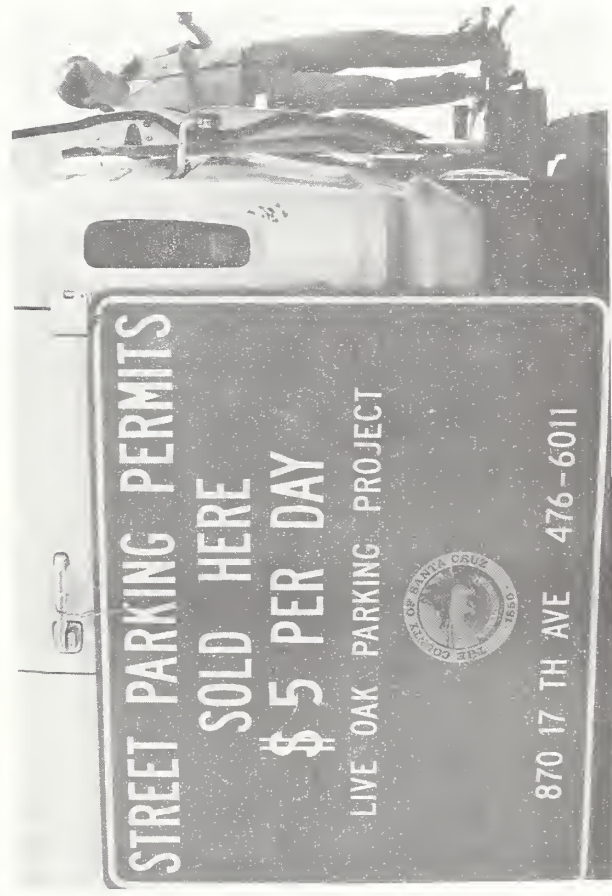
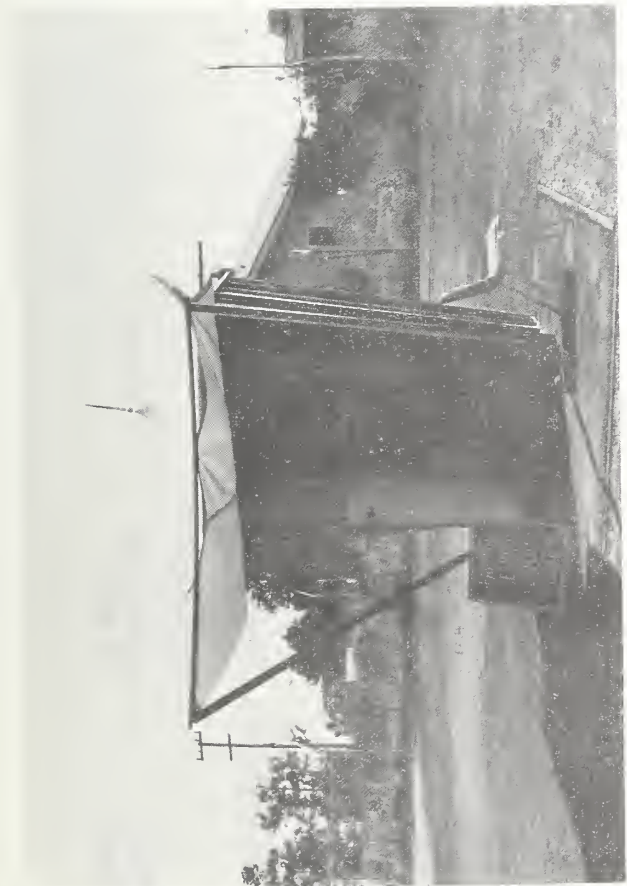


FIGURE 3-5. SALES OUTLETS

TABLE 3-1. PERMIT DISTRIBUTION SYSTEM SUMMARY

		PERMIT TYPE					Business			Special Event
		Resident	Guest	Day-Use	Season	Permanent	Transferable			
<u>1 9 8 1</u>	Eligibility	Residents	Residents	Non-residents	Not available	Employees of businesses	Businesses in zone	Residents & organizations		
	Free Permits	Three per household	None	None		One per business	As needed	As needed		
	Price	\$10	\$10, limit of two	\$5		\$10	Not available for sale	Not available for sale		
	Display Method	Bumper sticker	Dashboard card	Window card		Bumper sticker	Dashboard card	Dashboard card		
	Distribution	Three mailed, additional by application	By application	Field sales		By application	By application	By application		
	Number Issued	10,680 free 58 sold	319 sold	3936 sold		56 free	Unknown	Less than 10 events		
<u>1 9 8 2</u>	Eligibility	Residents	Residents	Non-residents	Non-residents	Employees of businesses	Businesses in zone	Residents and organization		
	Free Permits	Two per household	None	None	None	One per owner or employee	As needed	As needed		
	Price (prior to June 1)	\$5	\$5, limit 2 per season	\$3	\$10	Not available for sale	Not available for sale	Not available for sale		
	Price (after June 1)	\$7.50	\$7.50	\$3	\$20	Not available for sale	Not available for sale	Not available for sale		
	Display Method	Window sticker	Dashboard card	Window card	Window sticker	Window sticker	Dashboard card	Dashboard card		
	Distribution	Two by mail, additional by application	By application	Field sales	Mail order and field sales	By application	By application	By application		
	Number Issued	1308 free 50 sold	136 sold	3323 sold	346 sold	97 free	Unknown	Less than 10 events		

3.2.6 Enforcement

Enforcement of the permit regulations was conducted by officers who patrolled the area in three wheel electric vehicles (see Figure 3-6). The permit zone was patrolled from 10:00 am until 5:00 pm (seven days a week in 1981 and on weekends and holidays only in 1982). In 1981 six officers were hired solely to patrol the area. In 1982 only three officers were hired and they devoted one third of their time to selling permits. This reduction in manpower was made possible by the reduction in permit zone size and number of days the program was enforced. Each space was checked approximately four times each day during both 1981 and 1982. While this frequency would not check most short-term parkers, it would check most of the beach users.

The officers were limited in their powers solely to issuing \$28 citations for violations of the permit zone ordinance. All other laws including other parking restrictions were enforced by the California Highway Patrol (CHP). The CHP could not enforce the permit zone restrictions since they were established by county ordinance rather than state or federal law. The officers were hired through the civil service procedure and received only a minimum of training. However, although it was not a requirement, all of the persons hired were criminal justice students. They were given a brief orientation and distributed warnings for a week prior to the start of enforcement in 1981. Also, at the end of each day discussions were held on any problems that were encountered. Given the limited scope of their responsibilities, the training was adequate and no major problems were encountered.

FIGURE 3-6. ENFORCEMENT VEHICLE



3.2.7 Park-and-Ride Shuttle Service

During the 1981 season the Santa Cruz Metropolitan Transit district, under a contract from the parking program, operated a free shuttle service. These buses were operated from 10:00 am until 6:00 pm over two routes, one running from the 17th Ave. parking lot west to Twin Lakes State Beach and the other running from the 17th Ave. parking lot east along the beach to the 41st Ave. parking lot (see Figure 3-7). On weekdays the service on both routes had 30-minute headways while on weekends the headway was reduced to 15 minutes on the Twin Lakes route. Due to low ridership during 1981 the service was not provided in 1982.

The buses used were regular 28-passenger Transit District vehicles marked with signs and penants (see Figure 3-8). The use of standard transit buses imposed limitations on the amount and type of equipment that users could bring to the beach. Most importantly, surfboards are longer than the five foot length limit that SCMTD has for carry-on equipment. The use of open buses was discussed but rejected due to safety considerations. Also, the addition of exterior racks to the buses was also considered but was found to be infeasible.

3.2.8 Project Publicity

Most of the early publicity for the project centered on making local residents aware of the project and obtaining their input into the project design. In October, 1978, before the county applied to UMTA for the demonstration grant, letters were sent to area residents explaining the various elements of the program and soliciting comments. Following acceptance of the grant numerous newspaper articles and direct mailings kept area residents informed of the progress being made. Finally, prior to passage of the ordinance establishing the zone a public meeting was held to discuss final plans for the project.

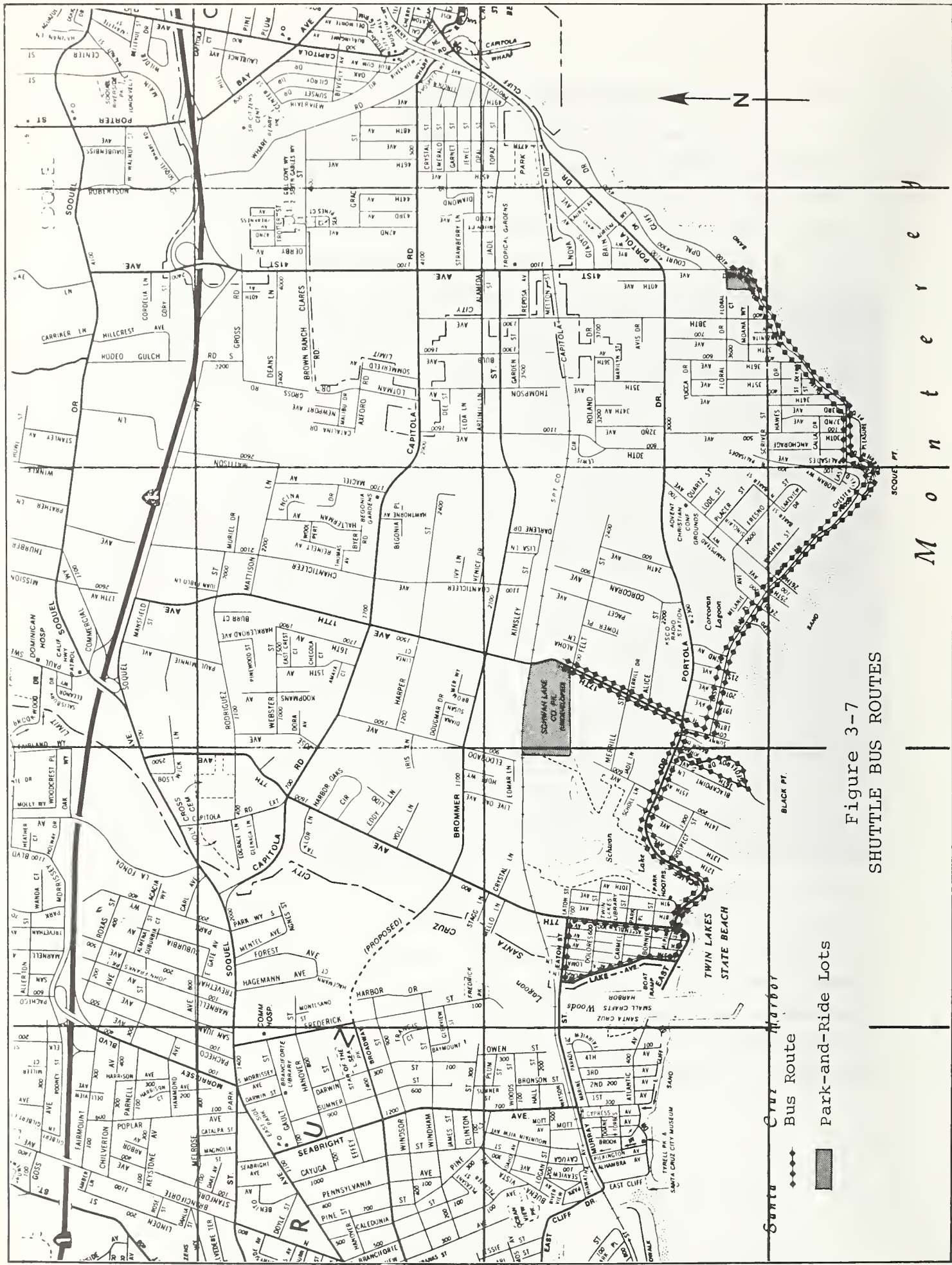


Figure 3-7
SHUTTLE BUS ROUTES



FIGURE 3-8. PARK-AND-RIDE SHUTTLE BUS & PARKING LOT

Once project plans were finalized for the project, publicity was needed to make all potential parkers, both residents and non-residents, aware of the program. Residents could be informed with relative ease through newspaper articles and direct mailing, especially since many of them were already familiar with the program from the planning stages. The non-residents, especially those from outside of Santa Cruz County, were much harder to reach. The project had to rely on signs posted along roads entering the zone (see Figure 3-8). These signs could not be posted along the major highways leading into Santa Cruz because of the potential confusion between the several beaches in the area. This meant that most non-residents, especially at the beginning of the program, were unaware of the program before they reached the project area and often had trouble understanding what their alternatives were. Surveys indicated that many non-resident beach users were unaware of the park-and-ride service (in 1981), the availability of season permits (in 1982) and the size of the fine for parking without a permit. Despite the shortcomings of relying solely on signs in the area, no viable alternative for informing non-residents was found.

4 . LEVEL OF SERVICE

4.1 SHUTTLE BUS SYSTEM

As previously noted, a shuttle bus system was operated seven days a week over two routes during 1981 (see Figure 3-7). Each route was a loop that took approximately 30 minutes to complete. On weekdays two 28-passenger standard transit vehicles were used to provide 30 minute headways on each route, while on weekends a third bus was added to reduce headways to 15 minutes on the more heavily traveled route. During the season a total of 14,345 passengers were carried.

Of the surveys which were conducted in 1981, two provide information on shuttle users' opinions. An on-board survey was conducted two weekdays (August 18 and 20) and two weekend days (August 22 and 23), and a beach user survey was conducted on four days during a previous week (August 4, 5, 7 and 8). (A complete description of all data collection activities appears in Appendix A.) Both the on-board and beach user surveys show that although shuttle bus use never reached the levels anticipated during the planning stages, those who did use the service were quite satisfied with it. Major results from the on-board survey include:

- o Primary reasons for using the shuttle bus were to avoid the cost of a day-use permit (59%) or to avoid parking difficulties near the beach (31%).
- o Sources of information about the shuttle bus included signs (43%), friends (37%), seeing the bus (37%), and media (14%).
- o Eighty percent of the riders said they found the parking lot easily, while 20% reported difficulty.
- o On weekends 83% of the shuttle bus riders had parked in the park-and-ride lot while on weekdays only 74% had.
- o Only 9% of those persons parking in the lot had dropped someone off at the beach prior to parking.

- o Ninety percent of those using the park-and-ride system planned to use it again the next time they visit this area; 5% said they probably wouldn't come back, and the remaining 5% said they would either buy a day-use permit or come by some other means.

In the beach user survey (with a total of 924 persons interviewed) only 23 bus riders were included--less than 3% of the total. Despite this relatively low sample size of shuttle bus users some interesting information can be extracted from the beach user survey:

- o Only one person reported having any problems with the system, that being trouble in finding the lot.
- o Although a few passengers reported taking as long as half an hour to get from their car to the beach, 83% took 15 minutes or less.
- o All of the shuttle bus users reported that they would use the shuttle bus again.

The beach user survey also contained a series of questions concerning the park-and-ride system directed to those beach users who had driven or been driven to the beach. Significant results from these questions include:

- o Of the 603 auto drivers or passengers interviewed, 428 (71%) were aware of the shuttle bus service prior to the survey. Those who had traveled five miles or less to get to the beach were much more likely to know about the service (88%) than those who had traveled more than 20 miles (58%).
- o After having the system explained to them, 53% of those who were unaware of the service prior to the survey said that they would be likely to use the shuttle bus the next time that they came to the beach. Explanations from those who felt it was unlikely they would use the system included: they felt the system would be inconvenient (31%), they did not come to the beach very often (16%), being unable to take all of their equipment on the bus (11%), and the feeling that they had no need for the system (11%).
- o Fifty of the auto users had used the shuttle bus on at least one previous trip to the beach. Of these, 21 (42%) had used it just once, 20 (40%) had used it two or three times, and nine (18%) had used it four or more times.

- o The primary reasons that former users did not use the shuttle bus on the day of the survey included: they couldn't carry their equipment on the bus (16%), the bus was inconvenient (16%), they got a ride (12%), they were able to find parking (10%), and they used a car instead (8%).
- o Sixteen percent reported having had problems with the service in the past. Their problems fell into two general categories--the wait for the bus was too long (10%) and the inability to bring equipment on the bus (6%).
- o Ninety percent of those who had ridden the shuttle bus in the past planned to use it in the future.

The two surveys indicate that the park-and-ride system had few actual problems with the level of service provided. Most people who had used the system were satisfied with it and planned to use it again. Most of the complaints given by the riders or former riders were either general complaints that would apply to any shuttle service or unfavorable comparisons with being able to park near the beach as they formerly had. However, there were two specific problems with the park-and-ride system which are apparent from the surveys. The largest problem for users was getting their equipment to the beach. Many beach users carried large amounts of equipment to the beach (e.g., coolers, beach chairs, inflatable rafts and balls) which would have required several trips to transfer from the car to the bus and from the bus to the beach. Many beach users would also carry surf boards which were longer than the five foot limit for the SCMTD buses. Had the shuttle bus been continued during the second year, it is likely that some measure could have been taken to mitigate this problem (e.g., relaxing restrictions against surfboards as a few drivers did on their own in 1981).

The other specific problem the surveys identified was a lack of information about the system among those who traveled relatively long distances to the beach. While this group was expected to be most likely to use the shuttle service, they were also least likely to be aware of it. This situation could have been ameliorated to some degree by a larger publicity effort in the San Francisco Bay area (especially Santa Clara County in the

South Bay) from where 73% of the out-of-county beach users come. However, due to the presence of a large number of other beaches in the area, this may have resulted in only creating more confusion. The problem of providing information to users with distant residences has no obvious solution and is likely to be present in any parking program with a majority of its users coming from remote areas.

4.2 PERMITS DISTRIBUTION SYSTEMS

4.2.1 Resident and Guest Permits

The free resident permits were mailed to most residences each year. A few residences which were inadvertently left off the mailing list had their permits hand delivered. This system presented no problems for most area residents. However, several claimed not to have received their permits, especially in 1981. These residents were issued new permits after signing an affidavit stating they had not received the original permits. The majority of these cases occurred in a single apartment complex where it was likely that they were stolen from the mailboxes.

Additional resident and guest permits required slightly more effort on the part of the residents. These permits were available at the project office or by mail and were issued upon receipt of an application (see Figure 4-1), proof of residence and the appropriate fees. While several area residents complained about having to pay for some permits, especially the guest permits, few complaints were received by the project administration about the distribution system.

FIGURE 4-1. PARKING PERMIT APPLICATIONS

PLEASE PRINT		SANTA CRUZ 95062		1981 BUSINESS PARKING PERMIT APPLICATION OFFICE USE ONLY	
BUSINESS ADDRESS #	STREET NAME		BUS. PHONE #		
BUSINESS NAME			TYPE OF BUSINESS	R PERMIT #	
YOUR NAME			<input type="checkbox"/> OWNER <input type="checkbox"/> MANAGER <input type="checkbox"/> EMPLOYEE <input type="checkbox"/> OTHER (EXPLAIN)		
FIRST	INITIAL	LAST		=	\$10
HOME ADDRESS #	STREET NAME		CITY/ZIP	HOME PHONE #	RECEIPT #
VEHICLE	YEAR	MAKE	MODEL	LICENSE PLATE #	ISSUED BY / DATE
1. Limit one permit per employee 2. Proof of employment & vehicle ownership or control required		I certify under penalty of perjury above information is true Sign & Date			

COUNTY OF SANTA CRUZ — LIVE OAK PARKING PROJECT — 870A 17TH AVE. SC 95062 (408) 476-6011

PLEASE PRINT		SANTA CRUZ 95062		1981 RESIDENTIAL PARKING PERMIT APPLICATION OFFICE USE ONLY	
ADDRESS #	STREET NAME		APT #		
NAME			<input type="checkbox"/> OWNER <input type="checkbox"/> TENANT <input type="checkbox"/> OTHER (EXPLAIN)	R RESIDENT PERMIT #	
FIRST	INITIAL	LAST			
PHONE	HOME	BUSINESS	DRIVERS LICENSE #	\$	
VEHICLE	YEAR	MAKE	MODEL	LICENSE PLATE #	RECEIPT #
INSTRUCTIONS:	1. SEPARATE APPLICATION REQUIRED FOR EACH VEHICLE 2. PROOF OF RESIDENCY & VEHICLE OWNERSHIP OR CONTROL REQUIRED			ISSUED BY / DATE	
I CERTIFY UNDER PENALTY OF PERJURY THAT THE ABOVE INFORMATION IS TRUE		SIGN & DATE		X REF	

COUNTY OF SANTA CRUZ — LIVE OAK PARKING PROJECT — 870A 17TH AVE. SC 95062 (408) 476-6011

PLEASE PRINT		SANTA CRUZ 95062		1981 GUEST PARKING PERMIT APPLICATION OFFICE USE ONLY	
ADDRESS: #	STREET NAME		APT #		
NAME:			<input type="checkbox"/> OWNER <input type="checkbox"/> TENANT <input type="checkbox"/> OTHER (EXPLAIN)	G GUEST PERMIT # \$10	
FIRST	INITIAL	LAST			
PHONE:	HOME	BUSINESS		G GUEST PERMIT # \$10	
INSTRUCTIONS:	1. No more than two guest permits will be issued to any residence 2. Proof of residency required			RECEIPT #	
I CERTIFY UNDER PENALTY OF PERJURY THAT THE ABOVE INFORMATION IS TRUE				ISSUED BY / DATE	
SIGNATURE & DATE				X REF	

COUNTY OF SANTA CRUZ — LIVE OAK PARKING PROJECT — 870A 17TH AVE., S.C. 95062 (408) 476-6011

The telephone surveys of area residents conducted in 1981 and 1982 asked several questions about the resident and guest permit system. Results from these surveys include:

- o Almost all of the area residents were aware of the permit program (98% in 1981 and 97% in 1982).
- o Approximately 5% of the residents reported having a problem with the distribution system in 1981. The most common complaints were having to pick up the permits personally because they did not arrive by mail, not receiving the proper number in the mail and having to argue with project personnel to get their permits.
- o None of the residents surveyed offered any suggestion for changing the permit distribution system per se, although several felt either that the price was too high or that more free permits should be distributed.
- o The only problem reported with using either type of permit was that one of the 19 guest permit users (5%) reported forgetting to use the permit.

In summary, it appears that the distribution system for resident and guest permits was adequate both years, and that the reduction from three to two permits per resident did not cause any widespread problems or objections.

4.2.2 Season and Day-Use Permits

Non-residents parking in the permit zone, other than guests of local residents or customers of local businesses, were required to buy a permit--seven days a week in 1981 and weekends and holidays only in 1982. During 1981 day-use permits could be purchased from the project office, field vendors or any of several local merchants with establishments in the permit zone. The project office was located on Seventeenth Avenue near the park-and-ride lot and was open seven days a week from 9:00 AM to 5:00 PM. The field vendors sold permits from kiosks at the park-and-ride lots and from vans parked near Twin Lakes State Beach. The number of field vendors selling permits was gradually reduced from six on weekends and four on weekdays at the beginning of the

program to three on weekends and two on weekdays by the end of the season.

The number of merchants selling permits was also reduced as the summer progressed from eight initially to five in August and September. The reason for this was not so much a lack of demand as it was a growing reluctance to be associated with the program when it was receiving a lot of adverse publicity. Some merchants felt that it was not worth the 50 cents they received for each permit sold to have this association.

During the second year of the program, both day-use and season permits were available to non-residents. Both types of permits could be purchased from the project office, field vendors or enforcement officers. In addition, season permits could be purchased through the mail with application forms that were distributed via windshield flyers and newspaper ads. During the second season, however, local merchants were not invited to participate in the program.

Only two field vendors were employed during the 1982 season. This reduction in project personnel was made possible by the decrease in permit zone size, elimination of weekday operations and the use of enforcement personnel to sell permits.

During the 1982 season the three enforcement officers sold permits from 10:00 to 11:30 AM. At 11:30 two of the officers began making their rounds, while the third officer continued to sell permits until 2:00 PM. From 2:00 on only the field office and the two field vendors would continue to sell permits. This arrangement worked quite well, especially since the heaviest permit sales usually occurred before 2:00, while the largest number of parked cars were present after 2:00.

The actual permit sales system provided few problems for the permit buyers. In the 1981 beach user survey, 23% of the permit buyers reported having a problem buying the permit. The majority of the problems reported, however, were either that the permits were too expensive or that buying any permit was an inconvenience. Only 8% of the permit buyers reported that the sales locations were hard to find. A survey of the permit buyers conducted in 1982 revealed even fewer problems. Only 7% of the

respondents reported any problems, with the majority of these being the general complaint that having to buy a permit was an inconvenience. Two percent reported having problems finding a vendor and 1% said that the process was time consuming. Surprisingly, these problems did not show any significant variation with time of arrival, despite there being fewer sales locations after 2:00 PM.

4.2.3 Business and Special Event Permits

Project personnel visited each business in the permit zone prior to the start of each season. These visits had several objectives, including recruiting businesses to sell permits (1981 only) and determining the number and type of permits each business would need for its own use. In 1981 the owner or manager of each business was given a free season permit and all employees were given a chance to buy a season permit for ten dollars. In addition, each business was given as many temporary customer permits as were needed. In 1982, all types of business permits, including those for employees, were free.

While these personal visits were an effective method of primary distribution for the permits especially in 1982 when there were few businesses in the zone, the business permit distribution system was not without problems. During interviews with the owners and managers of local businesses, conducted as part of the evaluation, several businesses reported problems with distributing the permits to their customers. In order to use these permits the customers had to park, go into the business and get a permit, return to their cars and place the permit on the dashboard and then return to the business. The large amount of effort needed to use the permit, combined with the low level of publicity for these permits, led to frequent neglect of their use. For this reason, enforcement officers were instructed to exercise discretion in issuing tickets near businesses. While this arrangement settled most of the problems, it at least partially compromised the value of having business permits at all.

The special event permits were issued on an ad hoc basis to local residents for one-time events, such as wedding receptions and garage sales. In order to obtain the permits the resident would fill out an application. The project manager would then review the application and decide whether the permits should be issued. Few applications for these permits were received, especially with the reduced program in 1982, and in almost all cases the requests were approved. This system gave project personnel tight control over the permits while allowing them the flexibility to deal with unique situations. Apparently there were few, if any, problems with this system as project personnel received no complaints concerning these permits.

5 . PROJECT DEMAND

5.1 PERMIT DEMAND

This section will examine the demand for permits and for on-street parking spaces with each year's distribution system by each of the various groups that park in the permit zone: residents, guests of residents, non-resident visitors, commercial establishments, and participants in special events. The distinction between demand for permits and demand for on-street spaces is an important one. While the majority of the day-use permits sold on a given day are likely to be used at the peak parking hours on that day, many of the resident and guest permits will be used infrequently, if ever. Although the aggregate demand for parking spaces will be examined in Chapter 7, some estimate of the frequency of use for each type of permit has been made in order to assess the impact of the group using these permits on the aggregate parking demand.

Also included in the first two subsections (Resident Permits and Guest Permits) is an estimate of the excess of cars above the number of available off-street parking spaces. This excess is used here to mean the number of on-street spaces used by the group for which no practical alternative exists. This provides an essentially fixed component of demand. There is also a variable component of demand from residents or their guests who choose to park on the street as a matter of convenience. This element of demand is hard to evaluate given the design of the project which had fixed prices during each year, an excess of permits in circulation and substantial changes in the zone between the two years. For this reason no attempt has been made to establish any price-demand relationship.

5.1.1 Resident Permits

The demand for resident permits is hard to estimate. Prior to the start of the 1981 season, three free permits were mailed to each residence in the zone*, and in 1982 each residence received two free permits. An additional 58 permits were sold to zone residents at \$10 each in 1981, and 50 additional permits were sold in 1982--first at \$5 and later at \$7.50 each. A total of 10,740 resident permits was distributed in 1981. This was reduced to 1,358 in 1982, mainly due to a sharp reduction in the size of the permit zone, but also due to the reduction in free permits per residence.

There is reason to believe, however, that many of the resident permits that were distributed free in 1981 and 1982 would not have sold for a price, even if nominal. An estimate of the number of vehicles owned by zone residents for which no off-street spaces are available can be obtained from the household survey and used as an estimate of the minimum demand for resident permits at any reasonable price. The actual demand of any given reasonable price would be somewhat higher than this estimate since many persons choose for a variety of reasons (e.g., their garage is being used for storage) to use on-street rather than available off-street spaces. No estimate of this portion of the total demand on the effect of price upon its size has been made as the distribution technique used in this demonstration did not allow for this type of analysis.

In the survey conducted of zone residents during 1981 only 30% indicated that they had more vehicles in Santa Cruz than they had off-street spaces. Among these 72% needed one additional (on-street) space, 23% needed two spaces and 5% needed three spaces. Thus the average household which needed any on-street

*Pre-sorted carrier route mailing was used in 1981. All households on given mail-carrier routes received permits even though a small number of these residences were not within the zone boundaries.

spaces at all needed only 1.3 spaces. This leads to an estimate for 1981 of a minimum of 1,390* total residents' vehicles in excess of the available off-street spaces.

In 1982 only two permits were mailed to each of the 654 residences in the zone, and an additional 50 resident permits were sold during this year. Although the total of 1,358 resident permits is somewhat more representative of an actual demand than the number of permits issued the previous year since fewer free permits were issued to each household, many more were also issued this year than there would have been a demand for at any non-zero cost. The 1982 household survey indicates that only 29% of the residences in this year's zone had more vehicles than off-street spaces. Of these 57% required one space, 39% required two spaces and 4% required three spaces, yielding an average of 1.5 spaces per household and an estimated minimum of 280 residents' vehicles not having an off-street space available to them in the 1982 zone.

As a means of validating these demand estimates, an estimate of the actual usage of on-street parking by residents is available from the license plate studies conducted in 1981 and 1982. These studies show the type of permit (if any) that each vehicle parked in the in-zone portion of the study area was using. A count was also made of the number of residences with mailing addresses in these study areas and the assumption was made that in general, the vehicles with resident permits parking in the study areas would belong to these residences.** In the 1981 study, an average of .47 vehicles per household with resident permits were parked in the study area during the time with the most resident vehicles parked and the heaviest total congestion (3:00 PM on weekends, see Table 5-1). If this average total is

*3,300 residences x 30% of the residences x 1.3 spaces per residence requiring a permit.

**This assumption may lead to an overestimate of the parking demand as some residents in the more distant areas of the zone may have driven to the beach and parked in the license plate study areas which, in general, are fairly near the beach. This error would be larger in 1981, given its relatively large zone, than in 1982.

consistent throughout the approximately 3,300 residences in the zone, then a total of about 1,500 residents' vehicles were parked in on-street spaces within the permit zone. At 3:00 PM on week-ends during 1982 an average of .32 vehicles per residence were parked in on-street spaces. If the same assumptions are made as on the 1981 data, then a total of 210 resident vehicles were parked at that time in the 1982 zone.

TABLE 5-1. RESIDENTS' VEHICLES PARKED IN ON-STREET SPACES*

Year	Days	Residents' Vehicles in Study Areas*	Residences Facing Study Areas	On-Street Spaces Used per Residence	Total Zone Residences	Total Spaces Used by Zone Residences
1981	Weekend (2 days)	150	315	.47	3,300	1,550
1982	Weekend (2 days)	57	179	.32	654	210

*At 3:00 PM (the time of the heaviest parking congestion).

This analysis of license plate data tends to confirm the prior analysis of resident permit demand, showing differences of 12% in 1981 and 25% in 1982. However, it should be noted that these totals estimate a slightly different parameter than those from the telephone surveys for two reasons. First, they include only the vehicles parked on the street at one particular time rather than all of the vehicles that will park on the street at some time during the season. Secondly, it does include the variable component of demand, i.e., those vehicles which could have parked in an off-street parking space but chose to park on the street). The largest reason for choosing to park in an on-street space probably is its convenience relative to off-street spaces, especially for short-term parkers. However, another possible reason for choosing to park on the street is to make the off-street space available for a guest. This appears to be a fairly common practice as 17% of the zone residents responded that their guests parked in the driveway. Unfortunately, there

is no way to estimate the number of resident vehicles parked on the street for this reason on the weekend of the license plate study, since there is no way to estimate how many zone residents had guests.

Having significantly more resident permits in circulation than were used by residents solely to provide parking for their own vehicles had several impacts on the project. As mentioned above, resident permits may have been used as replacements for guest permits by freeing up off-street spaces for guest use. In addition, some resident permits may have been given to non-residents or sold through a black market. This may have been responsible for a substantial portion of the cars parking with resident permits. Ten percent of residents in the 1981 household survey reported that they knew of at least one incident of this happening. However, there is no reliable way of determining how many resident permits were used by non-residents.

5.1.2 Guest Permits

In 1981, 319 guest permits were sold (about 1 permit per 10 households) to zone residents at \$10 each. While a total of only 136 guest permits were sold in 1982 at \$5 each, this represented an average of 1 per every 5 households in that year's reduced zone. Although these numbers give the actual sales of guest permits in each of these years, had fewer resident permits been issued free of charge, the demand, at these prices, may have been much larger. As mentioned in the previous section, many residents parked in on-street spaces in order to provide off-street spaces for their guests. Had the 17% of the 1982 zone residents who reported using this procedure bought guest permits instead, sales would have almost doubled.

The total potential market for guest permits can be estimated from the household surveys. Thirty-four percent of the households in 1981 and 40% of the households in 1982 had more off-street spaces than vehicles and thus would be unlikely to purchase any guest permits. That leaves a potential market of 2500 households in 1981 and 390 households in 1982. An average

of 1.5 guest permits were purchased by those households which purchased any permits in 1981, and in 1982 the average was 1.8. These figures can be multiplied to produce rough market potential estimates of 3750 in 1981 and 700 in 1982.

The license plate studies conducted in 1981 and 1982 can again be used to estimate actual use of guest permits. Table 5-2 shows an analysis of sample data similar to that described earlier to estimate zone-wide use of resident permits. The figures show a usage rate (3:00 PM weekends) of 110 spaces in 1981 and just 10 spaces in 1982.

TABLE 5-2. GUESTS' VEHICLES PARKED IN ON-STREET SPACES*

Year	Days	Guest Vehicles in Study Areas*	Residences Facing Study Areas	On-Street Guest Spaces Used per Residence	Total Zone Residences	Total Guest Spaces Used by Zone Residences
1981	Weekend (2 days)	11	315	.033	3300	110
1982	Weekend (2 days)	3	179	.017	654	10

*At 3:00 PM.

Thus, while there was a large potential market, the actual demand for these permits remained quite low even at the low prices charged. One of the factors reducing the popularity of the guest permits may have been the relative inconvenience of using them. The guest, as with the business customer, would have to park, go into the residence and get the permit from the owner, return to the car and place it on the dashboard and then return to the residence each time they came for a visit. In addition, before leaving, the guest would have to go to his or her car, retrieve the permit and return it to the owner. This process was quite inconvenient, especially for frequent or short visits, and may have caused many zone residents to use one or more alternatives. Respondents to the household surveys identified several such alternatives including having guests use the

off-street parking spaces, using a neighbor's off-street space or buying a day-use permit. Twenty-seven percent of the residents surveyed in 1982 made such special arrangements for their guests.

Vehicles using guest permits comprised 3.3% of the total vehicles parked in on-street spaces at 3:00 on weekends in the 1981 license plate study. In the 1982 license plate study only 2.0% of the vehicles in on-street spaces at 3:00 on weekends were using guest permits. (The difference between the two years is statistically significant at the 75% level of confidence [$t=1.12$]). The respondents to the household survey indicated that they used the permits significantly more often in 1982 than in 1981, despite the fact that weekdays were eliminated from the program (the 1981 license plate study indicates that approximately 63% of the guest permit usage occurred on weekdays that year). Seventy-five percent of persons surveyed who had guest permits in 1982 responded that they used their permits more than once a week while only 36% of those with permits in 1981 indicated this high of a usage rate ($t=2.13$). However, an actual increase in weekly usage consistent with these reports does not appear likely given the elimination of weekdays.

Given the discrepancies between the various data sets, it appears impossible to obtain an accurate estimate of the actual usage of on-street parking by guests. However, all of the data indicate that relatively few parking spaces were taken by vehicles using guest permits both in 1981 and 1982.

5.1.3 Day-Use Permits

In 1981 a total of 3936 day-use permits were sold. The majority of the 1981 field sales were made on weekends and holidays prior to the exemption of East Cliff Drive near Twin Lakes State Beach (see Table 5-3). Once the exemption was made--starting August 17, (approximately two-thirds of the way through the demonstration period) permit sales declined by over 80% on both weekdays and weekends. This is a strong indication of where most of the demand for the permits had been (in fact a majority of day use permits was sold from the van at the Twin Lakes Beach

area--merchant sales accounted for less than a third of all sales; small numbers were sold at the project office, at the 17th and 41st Avenue parking lots, and by another van in the Moran Lake area).

TABLE 5-3. DAY-USE PERMIT SALES

<u>Period</u>	<u>Number of Days</u>	<u>Field Vendor Sales</u>	<u>Merchant Sales*</u>	<u>Total Sales**</u>	<u>Average Daily Sales</u>
1981--Weekdays prior to the E. Cliff Cliff Dr. exemption	35	1032	327	1359	39
1981--Weekends and holidays prior to the E. Cliff Dr. exemption	17	1688	535	2223	131
1981--Weekdays after the E. Cliff Dr. exemption	15	36	47	83	6
1981--Weekends and holidays after the E. Cliff Dr. exemption	7	118	153	171	24
1981--Entire season	74	2874	1062	3936	53
1982--Entire season**	37	3323	0	3328	90

*The split between weekend and weekday sales was assumed to be the same for merchant sales as for field vendors sales. No data as to the exact day of sale were available for permits sold by merchants since revenue was collected weekly.

**The program was only run on weekends and holidays in a smaller zone with the section of E. Cliff Dr. (among other areas) exempted.

Several changes were made in the program for 1982 which may have decreased the total demand for day-use permits. In addition to retaining the exemption of East Cliff Drive near Twin Lakes State Beach, other areas were excluded from the zone. Also, the program was operated on weekends and holidays only. Although this should have had no effect on the sales per day, it had a large impact on total sales (in 1981 approximately 35% of the day-use permits were sold on weekdays). Finally, season permits were sold during 1982. These permits "competed" with the day-use permits for non-resident beach-users.

On the other hand, there were also several factors which should have increased permit sales. First, the 1982 season was

extended over a longer period--17 weeks compared with 11 weeks in 1981. While the average sales per day was lower during the extended periods (primarily May and September--46 permits per day), 18% of the total 1982 sales were made during these additional weekends. Second, the park-and-ride system was not operated during 1982. Although there is no way of estimating how many additional permit buyers resulted from this change, it is likely that some of the beach users who had ridden the shuttle in 1981 switched to buying day-use permits in 1982.

Perhaps the most interesting change was the reduction in price of the day-use permits from \$5 in 1981 to \$3 in 1982. Due to the presence of the other changes in the program (plus many exogenous variables such as weather) it is impossible to determine what the price elasticity was for the permits. An indication that the demand may have been quite elastic is the comparison between average daily sales in 1982 (all weekends and holidays) and weekend and holiday sales after the exemption of E. Cliff Dr. in 1981 (the period in 1981 with the program most similar to the program in 1982). During the 1982 season the average daily sales were nearly four times that of the 1981 period. While several other factors may have caused some of this change (e.g., the shuttle bus was still operating and the weather was poor over the Labor Day weekend), the price change appears likely to have had a large effect.

In both years the sales were much lower than was anticipated in the initial planning phase. In the Grant Application submitted to UMTA by Santa Cruz County in 1979, daily sales of 600 day-use permits at \$3 each were projected over a 120-day season. Actual sales, even on weekends and holidays prior to the E. Cliff Dr. exemption in 1981, were less than one-fourth of that amount. Several exogenous variables (see Section 5.4) may have contributed to the low demand. However, the major cause for the low demand appears to have been the large number of persons who parked illegally in the permit zone. In the 1981 license plate study over twice as many cars were identified as having no permit but being parked in the permit zone as were identified with day-

use permits. In 1982 the ratio fell only slightly to just under twice as many cars with no permit as with day-use permits. While some of the vehicles were only parked a short time and unlikely to purchase a permit, many others were parked for relatively long periods. 1.2 times as many citations were issued in 1981 as day-use permits were sold. In 1982 the number of citations issued decreased to about half as many as season and day-use permits sold. How much of this decrease is due to any actual decrease in the number of illegal parkers and how much is due to a decrease in the level of enforcement is not known.

Table 5-4 shows selected demographic characteristics of a sample of persons buying day-use permits during a survey conducted at point-of-purchase on two weekends in early August 1982. The table also compares these permit buyers with the persons riding the shuttle bus during a survey in 1981 and using the beach during each of three surveys taken in 1980, 1981 and 1982. As can be seen from the table, the persons buying day-use permits were significantly more affluent than the aggregation of all persons using the beach during the survey. Seventy-eight percent of those buying day-use permits during the 1982 survey were employed compared to only 61% of the persons on the beach ($t=4.80$). Eighty percent of the persons buying day-use permits during the survey had annual household incomes over \$15,000 while 71% of the persons on the beach had incomes above \$15,000 ($t=2.61$). The permit buyer survey was not conducted in 1981 but similar or even larger differences would be expected since prices were higher and the shuttle-bus was available and used by persons which, on the average, had lower incomes. Finally, the age distribution of permit buyers showed more people in the 25-34 category and less under 16 or over 45 than either all the persons on the beach or using the shuttle bus.

TABLE 5-4. DEMOGRAPHIC PROFILES OF PERMIT BUYERS AND OTHER BEACH USERS

Question/Response	Day-use Permit Buyers*	All Beach Users			Shuttle Bus Users**
		1980	1981	1982	
Employment status	(n=232)	(n=909)	(n=921)	(n=849)	(n=256)
Employed	78%	57%	60%	61%	55%
Student	15	27	25	26	33
Homemaker	3	6	6	5	6
Retired	2	3	3	4	2
Not currently employed	1	4	4	4	3
Other	1	3	1	1	1
Age	(n=248)	(n=910)	(n=921)	(n=849)	(n=257)
Under 16	1%	4%	4%	5%	10%
16-24	37	42	39	38	33
25-34	40	31	32	31	29
35-44	17	14	15	17	19
45-64	5	7	8	8	9
65 or over	0.4	2	3	1	1
Annual household income	(n=215)	(n=737)	(n=748)	(n=719)	(n=200)
Less than \$5,000	5%	15%	11%	10%	14%
\$5,000 to \$15,000	15	27	22	19	24
\$15,000 to \$35,000	38	34	40	37	38
Over \$35,000	42	24	26	34	26

*Conducted in 1982

**Conducted in 1981

5.1.4 Season Permits

The season permits were only sold in 1982. The price before June 1 was \$10 and it was \$20 thereafter. A total of 356 of these permits were sold with 179 sold at the project office either through mail orders (solicited by windshield flyers and newspaper ads) or to drop-in customers. The remaining 167 season permits were sold by the field vendors. The vast majority (80%) of the permits were sold prior to June 1 (at \$10 each) with only five percent of the permits being sold after the Fourth of July weekend. The price increase appears to have been the largest cause for the rapid drop in sales, although a general decline would be expected as the remaining season became shorter. One hundred and two season permits were sold by field vendors over

the Memorial Day weekend (47% of all visitor permit field sales on that weekend* with the price at \$10. During the following weekend, only 15 season permits were sold by the field vendors (8% of that weekend's visitor permit field sales) with the price increased to \$20. Some of this decrease may also have been due to having had many of the most frequent visitors buying season permits the first weekend and thus greatly reducing the potential market.

The season permits were used by approximately 5% of the vehicles parking in the permit zone in the 1982 license plate study. This was about one-half as many vehicles as used day-use permits. If this ratio was typical, then all of the season permits were used a total of 1,650 times, or about 4.8 times for each permit sold. The actual rate may have been slightly higher as many of the permits, especially those sold over the Memorial Day weekend, may have been used less frequently near the end of the season when the study was conducted than near the time they were sold. The break-even point (compared to buying day-use permits) was 3.3 uses for the permits sold prior to June 1 and 6.7 uses for the permits sold thereafter.

5.1.5 Business Permits

As mentioned earlier, there were two types of business permits used in each year. One sticker valid for the entire season was given to the owner of each business in the zone during 1981. Employees were also eligible for these permits, but had to buy them at a price of \$10 each. A total of 56 free permits were issued in 1981 with very few additional permits sold to employees. In 1982 both owners and employees of businesses in the zone were issued the season stickers, free of charge. A total of 97 permits were distributed among the businesses in the much smaller 1982 zone.

*Including day-use and season

The other type of permit available to zone businesses was a single-use permit for customers. Each zone business was given as many of these permits as were needed. While no attempt was made to keep track of how many of these permits were actually distributed by businesses, each permit was dated and enforcement personnel were alerted to possible abuses of the customer permits (e.g., cars using these permits and parking blocks away from the nearest business). Due to the difficulty of using this type of permit (see Section 4.2.3), very few were ever used. During both 1981 and 1982 only 3% of the vehicles included in the license plate study on weekends were using this type of permit. Also contributing to this low usage was the high percentage of zone businesses which had off-street parking available. This was especially true in 1981 when more large commercial establishments were included within the boundaries of the zone.

5.1.6 Special Event Permits

The demand for special event permits was very low in both 1981 and 1982. A total of less than 10 events were held each year for which residents required this type of permit. Events for which these permits were issued included such things as wedding receptions, real estate open houses and garage sales. These permits were only intended to provide a certain degree of flexibility to the program rather than to be used frequently. Thus, it is not surprising that these permits accounted for very little of the total demand for parking spaces. Any traffic or parking problems that were caused by their use (no evidence was found of any) are likely to have been very infrequent and confined to a very small area. The special event permits seem to have fulfilled their purpose, even with this small of a demand, without contributing to the parking problems.

5.2 PARK-AND-RIDE SYSTEM

As noted earlier, during 1981 a shuttle bus system was operated over two loops to take beach users from the park-and-ride lots to the beach. Two buses were used on weekdays to provide 30 minute headways on each loop and a third bus was added on weekends and holidays to reduce the headway on the more heavily used loop to 15 minutes. The shuttlebus service was discontinued at the end of the first season with low ridership and high costs cited as the reasons. During the entire 1981 season the buses carried 14,345 passengers. The average ridership on each round trip made by a bus was only 5.6 prior to E. Cliff Dr. being exempted (June 26 through August 16) and dropped to 3.9 after the exemption. The average daily ridership was 214 prior to the exemption and 145 after the exemption. The ridership was somewhat higher if only weekends are considered, with an average of 6.4 riders per bus trip and 333 riders per day prior to the E. Cliff Dr. exemption and 4.8 riders per bus trip and 231 riders per day after the exemption.

In addition to the obvious explanation of an overall lack of demand for this type of service, even though the service was provided for free, more specific reasons for lower ridership appear to have been the feeling that the bus was inconvenient, that the parking regulations would not be enforced, and a lack of information about the size of the fines (\$28, this was not publicized in 1981). While the shuttle bus attracted over one quarter of those who did not park in the zone without a permit, over half of the non-residents chose to ignore the permit regulation. Thus the shuttle bus was only able to attract about 12% of the total non-residents coming to the area. Had more people been dissuaded from parking illegally, the shuttle bus may have been able to attract sufficient ridership to have made its continued operation justified. However, it is unlikely that a substantial portion of the 600 park-and-ride lot spaces in the main lot on 17th Ave. would have been filled under any circumstances.

Referring back to Table 5-5, those people riding the shuttle bus during the survey were less affluent than the beach users in general, and there were significantly fewer persons in the middle age groups. Seventy-one percent of all persons included in the beach users survey were between the ages of 16 and 34, while only 62% of those persons on the shuttle bus were in this age group ($t=2.76$). Thirty-seven percent of the respondents to the shuttle bus survey had annual household incomes under \$15,000 compared with 33% of all beach users ($t=1.06$). There were a few differences between the travel characteristics of the two groups. Those persons surveyed on the shuttle-bus came from longer distances (49% from more than 10 miles compared to 43% of those surveyed on the beach [$t=1.70$]), and traveled in larger groups (mean size of 3.4 compared to 2.9 for all beach users [$t=1.91$]).

Most of the shuttle bus riders used one of the park-and-ride lots, with the majority using the 17th Ave. lot. Eighty-one percent of the respondents to the shuttle-bus survey reported one of the parking lots as either the origin or destination of their trip. An additional 13% were going to or coming from the beach but did not use the parking lots. The remaining 4% of the people were using the bus for other purposes such as shopping. Average daily use of the 17th Ave. lot was only 57 vehicles on holidays and weekends and 20 vehicles on weekdays prior to the E. Cliff Dr. exemption (records were not kept after the exemption). This level of usage is especially low when compared to the anticipated peak usage of 600 vehicles. Even on the busiest days usage was under 100 vehicles leaving the lot more than 80% empty. Although no records of lot usage were kept for the 41st Ave. lot, it was much smaller than the 17th Ave. lot and only 11% of the respondents to the shuttle bus survey reported using this lot as an origin or destination. The actual lot usage may have been slightly higher than this indicates as many persons who parked in this lot used "surfer beach" which is located directly across the street from the lot. The 41st Ave. lot is still in use throughout the year by persons using this beach.

5.3 BEACH USE

There is good reason to believe that aggregate beach usage in the Live Oak area, for whatever reason, was lower in 1981 and 1982 than in previous years. Business owners throughout the area reported slumping sales and the rangers at Twin Lakes State Beach also reported that usage of the Live Oak section of the beach was down. However, due to tremendous daily fluctuations in beach use throughout the area, there is not enough hard evidence on which to base a statistically significant estimate of the size of the decreases. The aerial photographs taken in 1981 show significantly fewer beach users on the Live Oak beaches than in the 1980 photos. The weather was poor on the days the photos were taken in 1981, however, and show a similar, although smaller, decrease in the Seabright area adjacent to but outside the permit zone. (This area does not have any sort of preferential parking program.) Due to the high cost of generating sufficient data to detect significant differences, aerial photographs were not taken in 1982. Attempts were made to count beach users from the ground in order to decrease costs and increase the number of days on which counts could be made. These counts proved too unreliable to use, with both significant sampling and measurement errors.

How much, if any, of the decrease was due to the program is not known. One possible indication that any decreases in beach usage was not primarily a result of the permit program is available from the beach user surveys. The demographic variables, shown in Table 5-5, changed very little across the three years the surveys were taken. There were small changes between the distribution of employment status (a slightly higher percentage of employed persons in 1981 and 1982) and age (fewer persons between the ages of 16 and 24). Although the changes are small, the direction of both these changes is consistent with persons with lower socioeconomic status being forced away by the program. There was a much larger decrease between 1980 and 1981

in the number of persons coming from households with annual incomes under \$15,000, although a large part of this shift may be due to inflation since the categories were not adjusted to take this into account.

The lack of large changes in the composition of the beach users does not guarantee that there was no significant decrease in beach usage due to the permit program but it does indicate that no particular group of non-residents was particularly disadvantaged by the program.

Although it is very likely that beach use was down during the project, the permit program was certainly not the only cause of this. Variation in such factors as the weather and economic conditions may have had a much larger role. (These exogenous factors are discussed in the next section.) Also, the decrease in beach usage itself may have had a significant effect on many of the program parameters. Most importantly, if beach usage was down for reasons other than changes induced by the program, then the demand for the elements used by non-residents (specifically shuttle-bus usage and demand for day-use and season permits) during the demonstration may have been lower than it would be at the same price but under more normal circumstances. Also, not all of the changes in parking space availability can be attributed to the program. Unfortunately, due to a lack of separability, there is no way of resolving either issue--to what degree beach use was down due to the permit program and what effect decreases in beach usage due to other factors has had on project demand and parking space availability.

5.4 EXOGENOUS DEMAND INFLUENCES

As mentioned in the preceding section, there were very important exogenous forces affecting both the project itself and data collection activities. The factor with the greatest influence was the weather. Not only did temperature affect the project demand but also the time that the fog lifted from the beaches and even the weather in the Santa Clara Valley (where

many of the non-resident beach users came from and often quite different from the weather in Santa Cruz) played a large role in individuals' decisions about beach usage. Because of the many elements of the weather that affected project demand, and the fact that even the most comprehensive source of weather statistics (the National Oceanic and Atmospheric Administration, which provides daily temperature and precipitation profiles), do not capture statistically the effects of weather on the decision process for going to Santa Cruz beaches (dominated mostly by the fog patterns, a profile of which is not available from any data source), it is impossible to present a meaningful objective analysis of the effects of each year's weather. The general consensus of the persons involved in the project, however, is that in 1981 and 1982 summer weather was generally worse than in 1979 and 1980. This probably depressed the demand for the permits and shuttlebus usage, especially among non-residents. It also is likely to have reduced parking congestion.

Another exogenous influence was the economy. The deepening of the recession in 1981 and 1982 may have impacted people's ability to frequently drive long distances to get to the beach. In addition, non-residents may have had less available cash both to pay for parking and make purchases from local merchants. This may have been the major factor in the decreases in sales revenues for local merchants in addition to decreased project demand. (See Section 7.3 for further discussion of sales by local merchants.)

There were also several other factors which may have decreased demand. Highway 17, the major road leading from the San Francisco Bay Area to Santa Cruz, had road blocks set up periodically throughout the 1981 season to enforce the medfly quarantine. During commute hours and on weekends, the roadblocks caused long backups and delays for many of the non-residents, including those from the Santa Clara Valley. In addition, there were problems at the beaches themselves. During 1980 there was a large fishkill of anchovies which produced an extremely strong

smell at Twin Lakes State Beach. In 1982 there was a problem with raw sewage spilling into the Yacht Harbor and threatening to contaminate the bay.

6 . CHANGES IN PARKING AND TRAFFIC FLOW

6.1 PARKING SPACE AVAILABILITY

This section examines the effect of the project on reducing congestion in the permit zone and what effect, if any, the project had on the surrounding areas. Two data sources are used to evaluate these impacts. The first is the license plate studies that were conducted in 1979, 1981 and 1982. These are used to provide hard data on the changes in parking space availability. The conclusions that can be drawn from these data are somewhat limited as these data were taken over only two weekdays and two weekend days each year. The data are thus quite susceptible to exogenous influences, especially the effects of weather. To the extent possible, many of these influences have been controlled for by comparing changes that occurred within the zone to those which occurred outside the zone.

The second source of data concerning parking congestion is the household surveys, which were also conducted in 1979, 1981 and 1982. These surveys are used to provide the opinions of area residents about conditions near their homes. In a sense, this is the most important measure of the success of this program as its main purpose is to relieve the problems faced by residents.

The project area and the discussion have been broken down into several sub-areas, based on its status each year with regard to the program. The first subsection of the discussion examines the changes which occurred in the area which was in the permit zone both years, 1981 and 1982. The next two subsections cover the areas which were in the original permit zone but were excluded from the zone in 1982: subsection 6.1.2 covers the residential area further from beaches than the permit zone; and subsection 6.1.3 covers the area which was closest to Twin Lakes State Beach and thus had the highest non-resident parking demand. The final subsection covers the Seabright area located

across the Yacht Harbor from the zone which was not involved in the permit program either year. This area therefore serves as a control for exogenous influences. (See Figure 6-1 for the location of these areas.)

6.1.1 Permit Zone 1981 and 1982

The parking space availability in this area was greatly improved by the introduction of the permit program in 1981. Table 6-1 presents comparative information concerning perceptions of the difficulty of finding parking by area residents. The table presents data across three years by sub-area in both tabular and graphic form. As can be seen from the table, the percentage of persons in the permit zone both years who felt that finding an on-street parking space was very difficult on weekends decreased from 72% in the preimplementation survey to 38% in the survey taken during the first year the program was operated. The license plate studies confirmed these impressions. These data are presented in Table 6-2. At 2:00 PM on weekends, the time of highest occupancy rate in this area prior to the program, the parking space occupancy rate dropped from 64% in 1979 to 37% in 1981. Although similar decreases in the occupancy rate occurred in the late morning and throughout the afternoon, the early morning counts showed little or no decrease. This is consistent with early morning parked cars belonging primarily to residents. In fact, the 1981 license plate study revealed that over 80% of the vehicles parked in the permit zone at 9:00 AM had resident or guest permits.

This area also experienced a significant decline in the on-street parking space occupancy rate on weekdays when the program was introduced. Table 6-1 shows that prior to the program 26% of the area residents in the household survey responded that on-street parking was very difficult to find on weekdays. In the 1981 survey this percentage dropped to 14%. The license plate study showed a drop in the occupancy rate of 20 percentage points at the time with the most vehicles parked, from 42% at 2:00 PM in 1979 to 22% at 2:00 PM in 1981. As on weekends, the changes were

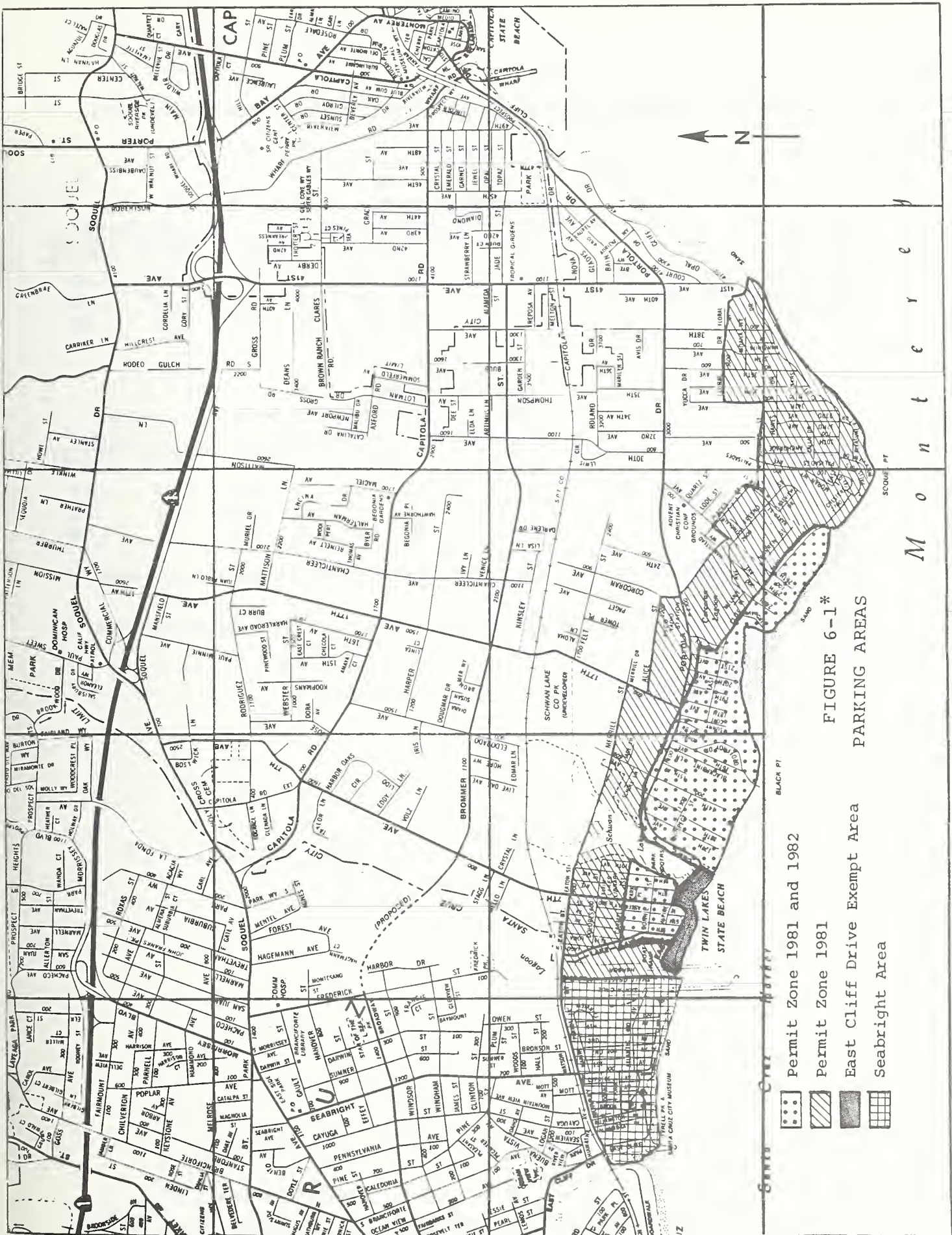


FIGURE 6-1*
PARKING AREAS





-  Permit Zone 1981 and 1982
-  Permit Zone 1981
-  East Cliff Drive Exempt Area
-  Seabright Area

TABLE 6-1. RESIDENTS' OPINION OF ON-STREET PARKING SPACE AVAILABILITY

Area of Residence	<u>WEEKENDS</u>			t-Value of Change	
	Percent Residents Responding On-Street Parking is Very Difficult to Find (n=)				
	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1980-81</u>	<u>1981-82</u>
	Permit zone 1981 and 1982	72% (111)	38% (73)	49% (93)	4.58**
Permit zone 1981 only	41 (230)	18 (119)	28 (141)	4.33**	1.90*
Seabright area	90 (39)	86 (36)	81 (47)	.53	.60

Area of Residence	<u>WEEKDAYS</u>			t-Value of Change	
	Percent Residents Responding On-Street Parking is Very Difficult to Find (n=)				
	1980	1981	1982	1980-81	1981-82
Permit zone 1981 and 1982	26% (111)	14% (69)	21% (94)	2.05*	1.14
Permit zone 1981 only	10 (229)	5 (121)	6 (141)	1.62	.35
Seabright area	26 (39)	36 (36)	17 (46)	.94	1.96*

*Significant increase or decrease at the 95% level of confidence (one-tail test).

**Significant increase or decrease at the 99% level of confidence (one-tail test).

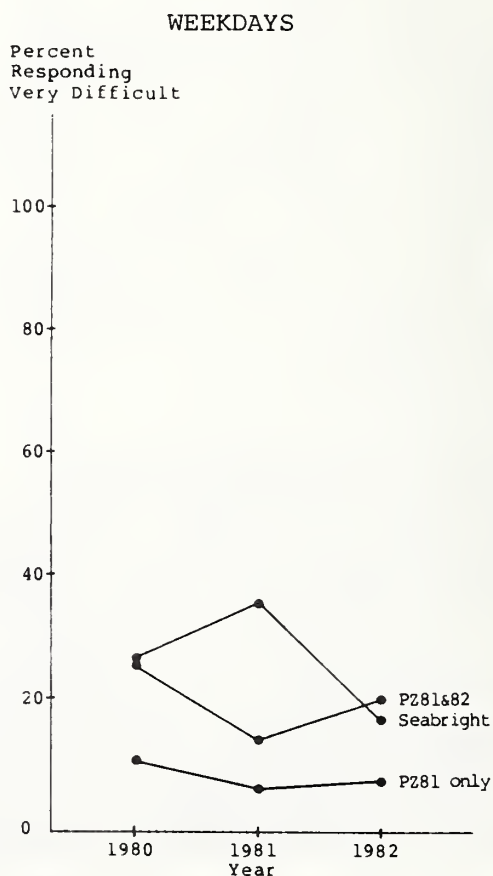
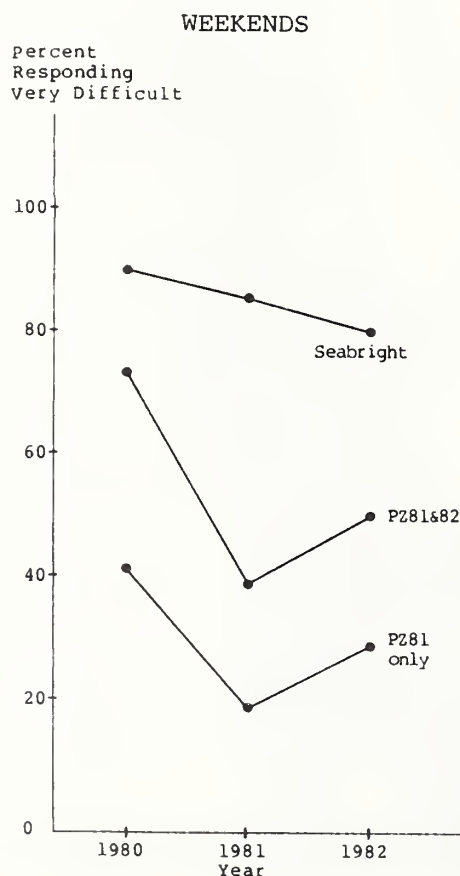


TABLE 6-2. PARKING SPACE AVAILABILITY, 1981 AND 1982 ZONE

Hour of the day	<u>WEEKENDS</u>			<u>t-Value of Change</u>	
	Percent Legal On-Street Spaces Occupied				
	<u>1979</u>	<u>1981</u>	<u>1982</u>	<u>1979-1981</u>	<u>1981-1982</u>
9:00 AM	20%	20%	21%	0.0	0.58
10:00 AM	23	20	20	1.66*	0.0
11:00 AM	31	22	22	4.64**	0.0
12:00 PM	42	29	24	6.18**	2.67**
1:00 PM	57	34	26	10.51**	4.12**
2:00 PM	64	37	26	12.28**	5.59**
3:00 PM	62	36	27	11.83**	4.57**
4:00 PM	53	34	29	8.60**	2.50**
5:00 PM	43	30	28	6.06**	1.02
(n=)	(966)	(1114)	(1114)		

Hour of the day	<u>WEEKDAYS</u>			<u>t-Value of Change</u>	
	Percent Legal On-Street Spaces Occupied				
	<u>1979</u>	<u>1981</u>	<u>1982</u>	<u>1979-1981</u>	<u>1981-1982</u>
9:00 AM	16%	13%	18%	1.93*	3.26**
10:00 AM	16	12	18	2.62**	3.97**
11:00 AM	21	13	19	4.84**	3.86**
12:00 PM	30	15	28	8.17**	7.47**
1:00 PM	38	20	40	9.02**	10.30**
2:00 PM	42	22	42	9.75**	10.12**
3:00 PM	41	22	40	9.30**	9.19**
4:00 PM	30	18	33	6.39**	8.12**
5:00 PM	24	17	24	3.94**	4.09**
(n=)	(966)	(1114)	(1114)		

*Significant increase or decrease at the 95% level of confidence (one-tail test).

**Significant increase or decrease at the 99% level of confidence (one-tail test).

largest in the early afternoon when the most non-residents visited the beaches.

The changes which occurred on weekends between 1981 and 1982 were smaller and much less conclusive. The percent of residents responding that parking was very difficult to find increased from 38% to 49%. While this difference was not significant at the 95% level of confidence, if both this response and the response "fairly difficult" are included, then the change (from 49% in 1981 to 69% in 1982) is significant even at the 99% level of confidence. The license plate study, however, showed a significant change in the opposite direction. The maximum occupancy rate decreased from 37% in 1981 to 26% in 1982. In addition, the 1982 household survey itself exhibited some internal inconsistency concerning changes from 1981. For example, 21% of the respondents reported that weekend parking was easier in 1982 than 1981 while only 14% reported that it was more difficult or much more difficult (64% reported that it was the same).

One possible explanation for this apparent contradiction is that the area residents had become used to a reduced level of parking problems during 1981 and were thus more likely to regard minor and occasional problems as making parking difficult in 1982 than they did in 1981 when they naturally drew comparisons with conditions before the program was implemented. An alternative explanation is that the license plate study did not accurately reflect the parking conditions for the entire 1982 season. The weather was generally worse on the days that the study was conducted in 1982 than in either 1979 or 1981, and the peak occupancy rate occurred later in the day.

Permits were not required for parking in the zone on weekdays during 1982. As expected, in the absence of weekday permit requirements, the occupancy rate within the zone increased both in perception and in reality. The percentage of residents who felt that it was very difficult to find on-street parking increased from 14% to 21% (this increase was statistically significant at the 87% level of confidence). The 1982 license plate study showed an increase in occupancy rate back to a level approximately the same as in the 1979 license plate study. The

maximum occupancy rate was 42% in both 1979 and 1982 (compared to only 22% in 1981) and the occupancy rates for these two years were within three percentage points of each other throughout the day.

6.1.2 1981 Permit Zone Only

This area is composed of the sections of the 1981 permit zone that were relatively far from the popular beaches (see Figure 6-1). These sections were removed after the 1981 season due to the high costs involved in providing enforcement of a large zone and a feeling among residents in these areas that the permit program resulted in more problems than benefits. Most of this area had, in fact, not been included in the boundaries of the zone as it was originally conceived of in the early planning phase. This area was added in response to citizen fears that non-resident parking would spill over when the program began.

The household survey shows that in 1980 this area did have some parking problems, as 41% of the respondents to the household survey felt that it was very difficult to find on-street parking near their home on weekends (see Table 6-1). This was much lower, however, than the 72% who gave this response from among those who lived in the area that remained in the zone both years. The permit program appears to have solved most of the parking problems for areas away from popular beaches with only 18% responding that finding an on-street parking space on weekends was very difficult in the 1981 household survey. As shown in Table 6-3, the license plate study assignments within this area confirmed a sharp decrease in the parking occupancy rate in 1981*. This decrease--as great as a two-thirds reduction from 65% to 21% occupancy at 3:00 PM--was larger than that for the

*Considering this area by itself, study assignments were not randomly distributed--this would have required changing assigned areas from 1979. As a result, parking occupancy rates for this area as projected from the license plate samples probably overstate actual rates, especially in 1979 and 1982 when the area was not part of the permit program. These differences should be kept in mind when interpreting the results of the survey, especially with regard to comparing the problems in different areas or evaluating the extent of any overflow problems.

TABLE 6-3. PARKING SPACE AVAILABILITY, 1981 PERMIT ZONE ONLY

Hour of the day <u>1983</u>	<u>WEEKENDS</u>			<u>t-Value of Changes</u>	
	Percent Legal On-Street Spaces Occupied				
	<u>1979</u>			<u>1981-1982</u>	
9:00 AM	33%	27%	30%	.89	.45
10:00 AM	39	23	29	2.35**	.92
11:00 AM	41	26	32	2.15*	.90
12:00 PM	49	24	25	3.52**	.16
1:00 PM	58	24	43	4.69**	2.73**
2:00 PM	62	22	46	5.50**	3.44**
3:00 PM	65	21	49	6.03**	3.98**
4:00 PM	62	22	53	5.50**	4.34**
5:00 PM	54	24	51	4.17**	3.78**
(n=)	(92)	(92)	(92)		

Hour of the day	<u>WEEKDAYS</u>			<u>t-Value of Changes</u>	
	Percent Legal On-Street Spaces Occupied				
	<u>1979</u>	<u>1981</u>	<u>1982</u>	<u>1979-1981</u>	<u>1981-1982</u>
9:00 AM	22%	18%	22%	.68	.68
10:00 AM	24	17	22	1.18	.86
11:00 AM	33	20	23	2.00*	.50
12:00 PM	40	20	24	2.96**	.65
1:00 PM	45	20	25	3.62**	.81
2:00 PM	52	18	26	4.83**	1.31
3:00 PM	46	18	29	4.07**	1.54*
4:00 PM	30	16	33	2.26*	2.33**
5:00 PM	34	17	30	2.28*	2.08*
(n=)	(92)	(92)	(92)		

*Significant increase or decrease at the 95% level of confidence (one-tail test).

**Significant increase or decrease at the 99% level of confidence (one-tail test).

area in the permit zone both years. The peak in the occupancy rate in the mid-afternoon in 1979 was not present in 1981. This indicates the presence of very few beach users, who tend to arrive at the beaches later in the day.

Changes in this area on weekdays after program implementation in 1981 were similar to those on weekends. Fewer persons found parking very difficult on weekdays, although this difference was not statistically significant. (The difference was significant, even at the 99% level of confidence, if the responses very difficult and fairly difficult are aggregated, with difficulty dropping from 31% in 1979 to 17% in 1981; $t=2.83$). The license plate study also showed a significant decrease in the occupancy rate on weekdays throughout most of the day. The maximum occupancy rate decreased from 52% to 20% and the peak in the occupancy rate in the mid-afternoon in 1979 was not present in 1981, suggesting that few of the vehicles parked in this area belonged to non-resident beach users.

In 1982, this area was no longer part of the permit zone. During weekends residents indicated that on-street parking was harder to find than in 1981, although not as hard as in 1980. Twenty-eight percent responded that it was very difficult to find parking on weekends compared to 18% in 1981 and 41% in 1980. The license plate study showed similar results with the occupancy rate increasing but not to as high a rate as before the program.

Any problems in this area may be exacerbated by an overflow of non-residents parking in this area in order to avoid buying permits. The data indicate that such an overflow effect was already occurring in 1982. The maximum occupancy rate on weekends in 1982 was over 20 percentage points higher in this area than in the permit zone, while before the program began they were almost identical. In 1981 this area, as part of the permit zone, had a much lower maximum occupancy rate.*

*Because of these problems the 1983 permit boundaries have been expanded slightly to include those areas which had the worst overflow problems in 1982.

Despite not having permits required on weekdays in 1982, as they had been in 1981, this area showed very little change in parking space availability on weekdays between the two years. The household survey exhibited virtually no change in the percent of residents reporting it was very difficult to park on weekdays. The only significant increases in the parking space occupancy rate from the license plate study occurred in the late afternoon. The maximum occupancy rate occurred later in the day in 1982 in this area than in the permit zone and along East Cliff Drive and may not have been primarily due to beach users.

6.1.3 East Cliff Drive Exempted Area

This area contains the on-street parking which is immediately adjacent to the Twin Lakes State Beach, the largest and most popular beach in the Live Oak area (see Figure 6-1). It was exempted from the permit zone in late August 1981 in response to complaints from local merchants that the program was hurting their business by driving people away from the area, and from residents of Santa Cruz County outside the Live Oak area who felt they should not have to pay for day-use permits at a beach in their own county. Since there are few residences facing East Cliff Drive itself in the vicinity of Twin Lakes State Beach, nearly all of the cars parked on East Cliff in this area during the day belong to beach users.

There was a small but significant decrease in the parking space occupancy rate on weekends between 1979 and 1981 (see Table 6-4)*. The small size of this decrease is somewhat surprising considering the impact that the program had on the other areas within the zone. It appears that this area is most beach users' first choice for parking and therefore least affected by the program. Consistent with this is the fact that a large proportion of the day-use permits sold were both sold and used in this area. The occupancy rate on weekdays decreased between 1979 and 1981 by more than the rate on weekends. The size of this decrease, combined with the large decreases in the rest of the permit zone, confirms that there was a very large decrease in total non-resident beach users parking in the permit zone on weekdays.

After this area was removed from the permit zone, it experienced a much higher occupancy rate both on weekends and weekdays (see 1981-1982 comparisons in Table 6-4). This increase was significant at every time of the day on both weekends and weekdays. East Cliff Drive, in addition to having the parking nearest to the most popular beach also had the added attraction in 1982 of not requiring permits. While this in itself does not explain the increase on weekdays, since permits were not required in any area on weekdays during the year, it does explain the increases on weekends. Perhaps non-residents became used to parking on East Cliff Drive on weekends and continued to do so on weekdays. There might also have been a fair amount of confusion among the non-residents over when permits were and were not required.

*The 1981 license plate study was conducted before East Cliff Drive was exempted from the permit zone.

TABLE 6-4. PARKING SPACE AVAILABILITY, EAST CLIFF DRIVE

Hour of the day	Percent Legal On-Street Spaces Occupied			t-Value of Changes	
	1979	1981	1982	1979-1981	1981-1982
9:00 AM	28	16	25	3.57**	2.83**
10:00 AM	39	20	34	5.29**	4.00**
11:00 AM	48	27	54	5.50**	6.98**
12:00 PM	69	51	66	4.66**	3.86**
1:00 PM	75	62	81	3.55**	5.58**
2:00 PM	76	69	89	1.99*	6.23**
3:00 PM	76	70	90	1.71*	6.34**
4:00 PM	70	67	80	.82	3.74**
5:00 PM	55	48	61	1.78*	3.31**
(n=)	(322)	(322)	(322)		

WEEKDAYS

Hour of the day	Percent Legal On-Street Spaces Occupied			t-Value of Changes	
	1979	1981	1982	1979-1981	1981-1982
9:00 AM	7	2	17	2.78**	6.49**
10:00 AM	14	8	26	2.43**	6.08**
11:00 AM	37	11	45	7.72**	9.61**
12:00 PM	57	18	70	10.22**	13.29**
1:00 PM	69	36	85	8.38**	12.72**
2:00 PM	70	43	84	6.91**	10.81**
3:00 PM	58	36	80	5.59**	11.31**
4:00 PM	41	21	60	5.48**	10.08**
5:00 PM	32	18	39	4.10**	5.90**
(n=)	(322)	(322)	(322)		

*Significant increase or decrease at the 95% level of confidence (one-tail test).

**Significant increase or decrease at the 99% level of confidence (one- tail test).

6.1.4 Seabright Area

This area is across the Yacht Harbor from the project area and is within the city limits of Santa Cruz (see Figure 6-1). There was no type of parking permit program operated in the Seabright area during any year of the Live Oak demonstration despite its having a parking problem which appears to be more severe than the problem in the Live Oak area prior to the program. The Seabright area is used in this evaluation as a control area for isolating the effects of exogenous variables.

As shown in Table 6-1, in the 1980 household telephone survey 90% of the Seabright residents reported that it was very difficult to find on-street parking on weekends. Although this level dropped somewhat over the next two years (86% in 1981 and 81% in 1982), these changes were small and statistically non-significant. This strengthens the hypothesis that reductions in parking in the permit zone were due to the permit program and not to exogenous variables such as weather.*

On weekdays, however, there was an increase between the years 1980 and 1981 in the percent of Seabright residents reporting that on-street parking was very difficult to find and a significant decrease between 1981 and 1982. This change may have been due to its proximity to the project area. Some non-residents may have been going to Seabright beaches on weekdays in 1981 instead of Live Oak beaches in order to avoid buying a permit. This was most likely to occur on weekdays since there was a higher percent of Santa Cruz County residents visiting the beaches. County residents would be more likely to know how to get to the Seabright beach which is somewhat harder to find than Twin Lakes State Beach and that parking was free in Seabright. Weekdays were also the time when there was the least problem finding parking in Seabright. While this interaction between beach use at the two areas reduces the value of Seabright as a

*License plate studies did not include the Seabright area necessitating a reliance on resident perceptions for these comparisons.

control area on weekdays, there appears to have been little effect on weekends.

6.2 TRAFFIC FLOW

Traffic counts of vehicles entering and leaving the project area were taken during comparable one-week periods in 1979, 1980 and 1981. (See Appendix A for a description of how these counts were taken.) These counts were cumulative for seven days (24 hours a day). In 1979 and 1981 they were conducted over approximately the same dates as the license plate. These figures show no drop in traffic flow in 1981 into or out of the permit zone such as might be expected from data presented in Section 6.1. In fact there was an increase of about 2% over 1980 (somewhat less than the 6% increase between 1979 and 1980). The traffic counters used to generate these data are not reliable enough to conclude that either change is statistically significant. Similar data was also collected for several locations in the Seabright area and a major access road into the Santa Cruz area from the north (Highway 17). Once again, these counts generally show small increases between 1980 and 1981.

It is not known what percent of the traffic crossing the counters is heading directly to or from beaches. It was probably a fairly small percent which would make differences in traffic flow due to the demonstration difficult to detect. This is especially true due to the high day-to-day variability in vehicle counts near the beaches mentioned earlier. As a result, the traffic count data are inconclusive with respect to the issue of what effects the demonstration has had on traffic congestion in and adjacent to the permit zone.*

*For this reason, this evaluation activity was abandoned after 1981.

Somewhat more enlightening are the perceptual data from the household surveys. These data are sensitive , not only to traffic flow in and out of the area, but also to traffic circulating in the zone, including those persons looking for parking spaces. As shown in Table 6-7, there was a statistically significant decrease between the 1980 and 1981 surveys in the percent of respondents in the project area who felt that the local traffic flow was very heavy on weekends. In addition, 44% of the residents of the area included in the 1981 and 1982 permit zones felt that weekend traffic had gotten lighter while only 19% felt that it was heavier and the remaining 37% felt it was about the same. In the area which was not included in the 1982 zone the improvement appears to have been smaller with 37% responding that the traffic was lighter in 1981 than 1980, 17% feeling that traffic was heavier, and 47% feeling it was about the same. In the Seabright area, which was used as a control group, there was a decrease between 1980 and 1981 in the percent of respondents who felt the traffic flow was very heavy near their house. While the decrease was not statistically significant at only 88% level of confidence, it does suggest the possibility that exogenous factors caused some of the weekend traffic decreases in the permit zone.

Perceived traffic congestion in the permit zone also appears to have decreased on weekdays in 1981. The decrease was significant at even the 85% level of confidence only in the area near the more heavily used beaches (the area which was included in both the 1981 and 1982 permit zones). The lack of a decrease in areas farther from heavily used beaches is most likely due to a combination of less beach traffic and more non-beach traffic in the areas farther from the beaches. The Seabright area had no significant change from 1980 to 1981 in the percent of respondents reporting very heavy traffic on weekends.

TABLE 6-5. RESIDENTS' OPINION OF LOCAL TRAFFIC FLOW

Area of Residence	<u>WEEKENDS</u>			<u>t-Value of Change</u>	
	Percent Residents Responding Local Traffic Flow is Very Heavy (n=)				
	1980	1981	1982	1980-81	1981-82
Permit zone 1981 and 1982	73% (124)	46% (79)	61% (96)	3.87**	1.98*
Permit zone 1981 only	59 (265)	40 (133)	64 (152)	3.58**	6.44**
Seabright area	85 (40)	74 (38)	58 (52)	1.22	1.57
Compared with last summer weekend traffic near your house is:	<u>1981 and 1982 zone</u>		<u>1981 zone only</u>		
	1981	1982	1981	1982	
	(n=73)	(n=85)	(n=120)	(n=146)	
Much lighter	18%	1%	9%	0%	
Lighter	26	7	28	3	
About the same	37	74	47	90	
Heavier	11	15	12	7	
Much heavier	8	2	5	0	
<u>WEEKDAYS</u>					
Area of Residence	Percent Residents Responding Local Traffic Flow is Very Heavy (n=)			<u>t-Value of Change</u>	
	1980	1981	1982	1980-81	1981-82
Permit zone 1981 and 1982	26% (124)	5% (77)	14% (97)	3.77**	1.96*
Permit zone 1981 only	18 (260)	14 (130)	4 (146)	1.00	2.81**
Seabright area	16 (38)	21 (38)	14 (51)	.56	.87
Compared with last summer weekend traffic near your house is:	<u>1981 and 1982 zone</u>		<u>1981 zone only</u>		
	1981	1982	1981	1982	
	(n=73)	(n=85)	(n=120)	(n=146)	
Much lighter	15%	1%	10%	1%	
Lighter	23	5	20	4	
About the same	46	83	57	92	
Heavier	11	11	11	3	
Much heavier	4	0	3	0	

*Significant at the 95% level of confidence.

**Significant at the 99% level of confidence.

In 1982 there were perceptions of more traffic in the project area on weekends than in 1981. A significantly higher percentage of both those living near the beach and further back felt that there was a very heavy local traffic flow. Also, while the majority of the residents felt that the weekend traffic was about the same in both areas, more felt that it had gotten heavier than felt that it had gotten lighter. The Seabright area had a decrease which was significant at the 94% level of confidence in the percent of residents reporting very heavy weekend traffic between the 1981 and 1982 surveys. However, if the responses "very heavy" and "heavy" are aggregated then there was an increase from 92% in the 1981 survey to 96% in the 1982 survey.

The traffic flow on weekdays near the beach appears to have been heavier in 1982 than in 1981 with a significant increase in the percent of both years' zone residents reporting traffic as very heavy. The area farther back from the beach, however, had significantly fewer people reporting local weekday traffic as very heavy and the Seabright area also had a decrease, although it was not statistically significant. It appears that in general traffic in the area was lower in 1982 than 1981, but exempting weekdays from the program increased traffic near the beach.

Overall the program appears to have reduced traffic near the beach. The major effects of the program, however, appear to have extended only a few blocks from the beach even when a larger area was included in the zone. When the size of the zone was reduced, there may have been a significant increase in traffic flow just outside the zone's perimeter from beach users looking for a parking space in this area to avoid buying a parking permit. However, it appears that the majority of the traffic on residential streets more than a few blocks back from the beach was comprised of persons other than beach users.

7 . PROJECT EXPENSES AND REVENUES

7.1 COSTS

The costs of the Santa Cruz parking permit program have been disaggregated in two ways. First they have been broken down into three distinct categories: capital costs, planning and start-up costs, and operating expenses. Table 7-1 contains a complete listing of all costs. In this table, operating costs are listed separately for the two years of operation. In addition, one-time costs of a planning nature incurred prior to the 1982 season have been listed separately under 1982 Revisions.

The capital costs include all those physical items intended to accrue benefits over several years even though some of these items were used only in 1981 (most notably the improvements in the 17th Ave. parking lot to support the shuttle bus system). Although these items provided benefits for only one year, and have only been charged against the year they were used they have been treated as if they were depreciated over 10 years to facilitate comparison of the annualized costs that would be expected if the program were continued indefinitely at each year's level of service. The planning and start-up category includes the cost of developing and revising the program. These are expenses that are expected to occur only once at the beginning of the project or, in the case of the revisions, only when major changes are made at infrequent intervals. The operating costs are those costs which would be expected to recur annually if the project continued at the same level. In cases where these costs could not easily be separated from the "one time" costs (planning and start-up and revision), such as the salary for the project manager, only those costs which were incurred when the program was actually in operation were included under the operating cost headings.

TABLE 7-1. PROJECT EXPENSES

Item	Capital	Planning & Start-up	1981 Operating	1982 Revisions	1982 Operating
1. Administration					
a. Office rent	--	2,280	2,280	3,210	3,800
b. Utilities & phone	--	359	143	92	319
c. Proj. director-salary	--	34,288	10,131	10,668	12,058
d. Staff assist.-salary	--	--	6,185	--	--
e. Office clerks-salary	--	--	5,034	--	2,034
f. Ads for personnel	--	545	--	--	--
g. Office equipment	3,132	24	--	--	175
h. Office supplies	--	1,723	252	--	666
i. Travel & car rental	--	29	1,270	3,700	3,800
Subtotal	3,132	39,248	25,295	17,670	22,852
2. Permit Distribution and Sales					
a. Permit and appli- cation printing	--	--	4,125	--	1,383
b. Permit mailing	--	--	215	--	40
c. Kiosks	426	--	--	--	--
d. Sales vehicle rental	*	--	2,257	--	--
e. Sales personnel salaries	--	--	13,905	--	5,545
f. Security	--	--	1,169	--	--
Subtotal	426	--	21,671	--	6,968
3. Publicity					
a. Signs	10,766	--	833	1,197	666
b. Newspaper ads	--	170	71	--	164
c. Mail. to residents	--	882	--	--	--
Subtotal	10,766	1,052	904	1,197	830
4. Enforcement					
a. Ticket printing	--	--	642	--	247
b. Enforce. vehicles	23,467*	--	--	--	--
c. Vehicle mainten. and storage	--	--	518	--	371
d. Personnel salaries	--	--	24,456	--	4,997
e. Signs	19,132	--	1,480	2,127	1,184
f. Miscellaneous	--	--	102	--	--
Subtotal	44,599	--	27,198	2,127	6,799

PROJECT EXPENSES (Cont'd)

<u>Item</u>	<u>Capital</u>	<u>Planning & Start-up</u>	<u>1981 Operating</u>	<u>1982 Revisions</u>	<u>1982 Operating</u>	
5. Park-and-Ride						
a. Shuttle bus service	--	--	36,749	--	--	
b. 41st Ave. lot rental	--	--	4,300	--	--	
c. Lot improvements	49,071	--	--	--	--	
d. Signing	10,481	--	812	--	--	
e. Miscellaneous	--	--	631	--	--	
Subtotal	59,552	--	42,492	--	--	
TOTAL	118,475	40,300	117,560	20,994	37,449	
Annualized cost, 1981	19,311	6,569	117,560	3,422	--	<u>Total</u> 146,862
Annualized cost, 1982	9,535	6,569	--	3,422	37,449	56,975

*Vehicles bought and used for enforcement vehicles in 1981 were used as sales vehicles part of the time in 1982.

In the computation of each year's total cost, the capital and planning and start-up costs have been annualized over a ten year period at a 10% discount rate and no salvage value(i.e., a capital recovery factor equal to .163). No salvage value was used since it is likely that the major capital items (i.e., the parking lot improvements, the enforcement vehicles and the signs) would have no alternative use after 10 years of use by the project, and a negligible or non-existent scrap value. Also, capital costs have only been charged to the year or years during which the items were actually used in order to facilitate comparison of the two years' programs. Thus, the 1982 capital costs are less than one-half those for 1981, due almost entirely to the elimination of the park-and-ride lot. Planning, start-up and revision costs, on the other hand, have all been charged to both years since these costs would be incurred by either of the two years' programs. A more complete discussion of the treatment of these costs appears in sections 7.1.3 and 7.1.6.

The other way in which the costs have been disaggregated is by the various project elements: administration, permit distribution and sales, publicity, enforcement, and park-and-ride. The

cost of each of these elements is discussed in detail in the following subsections. Table 7-1 is also arranged such that costs by element can be identified separately.

7.1.1 Administrative Costs

The administrative costs account for over one third of the total project outlays through the end of the 1982 season. The largest of these costs by far is the Project Directors' salaries, accounting for 62% of the administrative expenditures. In the future these costs will be substantially reduced as a Project Director will only be employed for part of the year. The next largest cost has been for other project personnel (12% of the total). These costs have also been substantially reduced with reduction of the permit zone size. The field office (which represents 11% of the total cost) will either be rented only in the summer or not at all. If it is not rented at all it will be replaced with a trailer. The remaining costs comprised 15% of administrative expenses.

Over half of the total administrative expenditures were spent during the 1981 planning and start-up or the 1982 revision phases. Most of the money spent during these phases was spent on the Directors' salaries or office rent. As noted above, both of these elements should be greatly reduced in the future. While fewer revisions will be needed between each season as the program progresses, some amount of time will have to be spent examining the results of each year's program. If this function is not performed by the Project Director, there will have to be some time spent by other personnel within the Department of Public Works. Thus while it is likely that these costs will be lower in the future, they will not be entirely eliminated.

The reduction in permit zone size and hours of operation appear to have substantially reduced administrative costs. While the total administrative operating costs for 1982 were only 10% lower than those for 1981, the operating cost per week decreased by 42% from \$2,300 in 1981 to \$1,344 in 1982. Most of this reduction came from the elimination of the staff assistant position and a reduction in the number of clerical hours. In the

future it does not appear likely that these costs can be further reduced to any appreciable degree.

7.1.2 Permit Distribution and Sales

Almost all of the costs for this element of the 1981 program were operating costs. The largest of these was the salary expense for the field vendors comprising 64% of the operating expenses. The labor costs were especially high at the beginning of the season but dropped significantly toward the end when fewer field vendors were used. An additional 19% of the 1981 operating expenses were for the printing of permits and applications with over half of those charges for resident, guest or business permits. Also, in 1981 10% of the operating expenses were for rental of sales vans.

In 1982 the operating expenses for this section of the program were less than one third of those for 1981. Large reductions were made in all elements of this category. Labor expenses were reduced by 60% through the elimination of weekdays from the project, the use of enforcement personnel to provide a sales force that varied with demand* and a reduction in the size of the permit zone (and thus the number of field vendors required in order to cover the zone). The reduction in permit zone size also helped reduce printing costs by reducing the number of resident, guest and business permits. Also contributing to the 66% decrease was the switch from a day-use permit that was valid during only one month in 1981 (different colors were used for different months) to a permit that could be used during the entire 1982 season. The third largest cost, sales van rental, was eliminated entirely along with the use of the kiosks.

Although the change in day-use permit distribution from the use of vans and kiosks to enforcement vehicles eliminated some costs, from an accounting standpoint the capital depreciation

*The salaries paid to enforcement personnel for time they spent selling permits has been included under this heading.

costs for the enforcement vehicles in large part offset this reduction in sales costs. The annualized capital costs for these vehicles is \$4,150*, and since they spent approximately one half of their service hours selling permits in 1982, an additional charge of \$2,075 should be used in comparing the two years' permit sales costs.

The total cost for permit sales and distribution, including the contribution to depreciation of enforcement vehicles as described in the previous paragraph, was \$9,043 in 1982, down 58% from 1981's total of \$21,740. As shown in Table 7-2 the 1981 cost for field vendors was actually higher than the revenue taken in by them (revenues are discussed more fully in section 7.2). In 1982 the costs for day-use and season permit sales by field vendors had dropped to 63% of their revenue despite the large reduction in permit prices. While these costs are still quite high, there do not appear to be any areas in which further major cost savings can be made.

TABLE 7-2. FIELD VENDOR COSTS AND SALES

	<u>1981</u>	<u>1982</u>
Operating costs (2c through 2e on Table 7-1)	\$17,331	\$5,545
Annualization of capital expenses	<u>69</u>	<u>2,075</u>
Total annual cost	\$17,400	\$7,620
Day-use permits sold	2,874	3,323
Season permits sold	0	55
Revenue from day-use and season permits	\$14,370	\$12,089
Costs as a percent of revenue	121%	63%
Cost per permit sold	\$6.05	\$2.25

7.1.3 Publicity Costs

The largest publicity cost by far was purchase and installation of signs directing non-residents to the permit sales

*\$25,467 at 10% interest with a 10-year recovery period.

locations and providing general information about the permit program. Cost elements for these signs include the capital expenditures for the signs, posts and anchors, annual operating expenses for installing the signs each spring and removing them each fall, and the cost of revising the signs prior to the 1982 season to reflect the changes in the program*. The only other operating costs for publicity were for newspaper ads. In 1982 these ads contained order forms for non-resident season permits in addition to providing information about the changes in the permit zone. These ads were quite effective, especially for sales of season permits, and in the future they may be expanded to include the San Francisco Bay Area. The other expenditures included under this heading (those for mailings to residents and newspaper ads during the planning and start-up phase) were used to inform residents about the project and to solicit their input for project planning purposes.

7.1.4 Enforcement Costs

For both years the vast majority of the enforcement operating costs were the salaries of enforcement personnel. These comprised 94% of the operating expenditures in 1981 and 85% of the total in 1982. Total operating costs were reduced by 75% from \$27,198 in 1981 to \$6,799 in 1982. As with other program elements, these cost reductions once again occurred primarily because of the elimination of weekdays from the program, the reduction in permit zone size and the use of the enforcement personnel to sell permits during part of the day.

In addition to the reduction in operating costs, there was a substantial reduction in the annualized capital charged to enforcement from 1981 to 1982 since the enforcement vehicles only

*The costs for regulatory signs and signs giving directions to parking lots have been included under the enforcement and Park-and-Ride headings, respectively, and are disaggregated in the same manner.

used half of their in-service time for enforcement duties. As shown in Table 7-3 the total annual costs of enforcement dropped by 67%. However, the cost per day of enforcement dropped by only 34% and the cost per citation dropped by only 13%.

TABLE 7-3. ANNUAL ENFORCEMENT COSTS

	<u>1981</u>	<u>1982</u>
Annual operating costs	\$27,198	\$6,799
Annualization of capital, planning and start-up, and revision costs	<u>7,617</u>	<u>6,015</u>
Total annual cost	\$34,815	\$12,814
Enforcement days	73	37
Cost per day	477	346
Valid citations issued	4,429	1,704
Cost per citation	7.86	7.52

7.1.5 Park-and-Ride Costs

The Park-and-Ride system was only operated during the 1981 season. The shuttle-bus operation was contracted to the Santa Cruz Metropolitan Transit District at a cost of \$213 per day per bus. The total cost for the entire season was \$36,749 (86% of all Park-and-Ride operating costs). The contract covered all costs for the buses (including fuel, maintenance and driver salaries). Other operating costs for the Park-and-Ride system included rent on the parking lot at 41st Ave. (10%), installation and removal of signs (2%) and miscellaneous expenses (1%).

In addition to the operating expenses, the Park-and-Ride system involved capital expenditures which totaled \$59,552 (50% of all capital expenditures for the entire project). By far the largest capital expense was the grading, surfacing and marking of the 17th Ave. parking lot, comprising 41% of the total capital expenditures for the entire project. In retrospect, much of this cost could have been avoided if a smaller area had been prepared for use. Even on the busiest day of the 1981 season only one sixth of the lot's capacity of 600 vehicles was used and on the

average weekend day it was used by only 56 vehicles--less than 10% of capacity. However, prior to the start of the program there were no data to estimate what the demand would be for the Park-and-Ride system. In fact, the Coastal Commission required that 600 or more spaces be provided for the Park-and-Ride system.

The total cost for the Park-and-Ride system (with capital and planning and start-up costs annualized at a 10% discount rate over 10 years) for the 1981 season was \$52,199. The cost of the total system was \$3.63 per passenger with \$2.56 of the total being expended for the shuttle-bus service. While these costs were quite high, they were essentially fixed. If the system had been able to attract the anticipated level of ridership, the per passenger costs would have been quite reasonable.

7.1.6 Total Annual Costs

As shown in Table 7-4 (condensed from Table 7-1), 1982's total annual cost was \$56,975, a 61% reduction from 1981's total of \$146,862. The majority of each year's annual costs were operating expenses: in 1981 operating expenses were 80% of the total costs and in 1982 they were 66% of the total. This was also the cost category in which the largest reductions were made between the two years (68%).

TABLE 7-4. ANNUAL COSTS

	<u>1981</u>	<u>1982</u>
Operating	\$117,560	\$37,449
Annualized capital	19,311	9,535
Annualized planning, start-up and revision	<u>9,991</u>	<u>9,991</u>
Total	\$146,862	\$56,975

The next largest category of expenses is the capital cost. These costs have been annualized over 10 years at a 10% discount rate (i.e., a capital recovery factor equal to .163). The 1981

costs include the annualization of all expenditures for capital while those for 1982 include only those items which were actually used in 1982. (Items excluded from the 1982 capital costs were parking lot improvements, park-and-ride informational signs and the sales kiosks). The exclusion of these items yielded a 51% savings in capital costs for 1982 as compared to 1981. Although this was not an actual savings in that the parking lot, signs and kiosks have not been put to alternative uses, it does represent the lower costs that would be experienced by any other locality instituting a program which did not include these elements.

The final category of costs is planning, start-up and revisions. This is the smallest category of costs, accounting for 7% of the 1981 costs and 18% of the 1982 costs. These costs, like the capital costs, have been annualized over a 10-year period at a 10% discount rate. All costs, even those incurred after the 1981 season had ended, have been charged to both years. The reason for treating these costs in this manner is that the project planning has been an evolutionary process. Even if only minor changes had been implemented between the two seasons, a substantial amount of time would have been spent examining the program and deciding which elements needed change and what type of changes would be effective. Thus, the cost of the entire planning process should be shared by all years to facilitate meaningful comparisons.

7.2 REVENUES AND SELF-SUFFICIENCY

One of the major objectives of this demonstration was to establish a program that would be financially self-sufficient. The major source of revenue for the project was expected to be the sale of day-use permits. The sale of these permits was, however, far below expected levels. The grant application filed with UMTA by the county projected sales revenue of \$1,800 per day over a 120 day season. In actuality only \$254 per day was collected from the sale of day-use permits during the 73 day season in 1981 and \$398 per day was collected from the sale of

season and day-use permits on 37 weekend days during 1982. These amounts represent only 22% and 35%, respectively, of the total annual revenue for the project as shown in Table 7-5.

TABLE 7-5. ANNUAL REVENUES

	<u>1981</u>	<u>1982</u>
Day-use permits	\$19,680	\$9,969
Season permits	--	4,740
Resident permits	580	445
Guest permits	3,190	1,210
Citations	<u>69,612</u>	<u>26,782</u>
Total	\$93,062	\$43,146
% of total costs	63%	76%

The major source of revenue was, in fact, citations issued for parking in the zone without a permit. Although these revenues are placed into the general fund rather than the parking project account, for the purposes of this report they have been considered project revenues. As such they constitute 74% of the revenue received from the 1981 project and an estimated 61% of the 1982 project revenues. The 1981 figure includes all revenue from citations issued in 1981 and received from the courts through November 1982*. The 1982 figure is an estimate based on the total valid citations issued and the 1981 collection percentage (61%). Eventually a slightly higher percentage of the fines may be collected for each year but it is unlikely that additional collections will be large given that more than a year has passed since the end of the 1981 program.

The remaining revenue for the project came from the sale of resident, guest and business permits. These items were never intended to produce large revenues. Instead they were sold at a

*The courts collect an additional \$3 per citation for court costs. The revenue reported here includes only the up to \$25 per citation actually received by the County.

price sufficient only to discourage abuse. In addition, as previously noted, most of the resident permits were distributed free of charge. These sources of revenue accounted for only 4% of each year's total revenue.

The total revenue received covered 63% of the total program costs in 1981 and 76% of the total program costs in 1982. The annual project deficit was reduced from over \$50,000 in 1981 to approximately \$14,000 in 1982. While this shortfall is still quite large, it may be significantly reduced in the future via cost reductions (e.g., elimination of the project field office) and revenue increases. Factors which may contribute to increased revenues include better public acceptance with time, especially if other local beaches adopt similar programs as is currently proposed, a general improvement of the economy and an absence of medfly quarantines, persistent poor weather and other exogenous forces. However, these revenue gains may be offset to some degree by either a decrease in the number of parking citations given out as non-residents become more familiar with the program and learn how to avoid being ticketed or by an increase in revenue-inhibiting exogenous forces.

As an indicator of long-run program viability, it may be useful to eliminate capital expenditures from the comparison of revenues with costs from Tables 7-4 and 7-5. Based on annual operating costs plus planning, start-up and revision costs, the project deficit was approximately \$34,000 in 1981 and just \$4,000 in 1982. If revenues are compared with operating expenses only, the 1981 program produced a deficit of about \$24,000 and the 1982 program a surplus of \$7,000.

7.3 IMPACT ON COMMERCIAL ESTABLISHMENTS

The Live Oak area is primarily residential and does not contain many commercial establishments. Within the permit zone, businesses are small and cater primarily to a beach crowd. Most are small restaurants, food markets, or motels. While project planners did not feel that the permit program would have an adverse effect on these businesses, they sought to allay the

concerns that were raised prior to the 1981 season by issuing free permits to business owners and by offering businesses the opportunity to sell day-use permits. (A discount of 50¢ per permit was offered to defray any expenses incurred in the distribution process.) It was felt that this might actually improve business by generating increased walk-in traffic for participating merchants.

Prior to initiation of the program, most merchants reacted favorably to the concessions made on their behalf and many volunteered to sell the day-use permits. However, as the summer of 1981 progressed, attitudes toward the program by area merchants steadily deteriorated and became a major focal point of adverse publicity carried by local media.

While no formal assessment of economic impact was attempted as part of the evaluation, the following pieces of anecdotal evidence shed some light on the nature and extent of such impact:

- o A formal complaint was submitted during 1981 to the County Board of Supervisors by the Santa Cruz Port District "documenting" a decrease in business by its seven merchants (actually located just outside the permit zone adjacent to Twin Lakes Beach at the entrance to the yacht harbor) of between 17% and 34% as a direct result of the decrease in visitors caused by the permit program. While the supporting documentation consisted only of subjective claims by five of the seven establishments, taken in conjunction with the two that did submit comparative sales data there is probably sufficient evidence to indicate that business was off. However, it should be noted that bad weather, price increases, and a general deepening of the overall economic recession may have contributed significantly to the declines.
- o Businesses within the permit zone also complained of declining sales on an individual basis during 1981. However, when comparative sales data for one of the complaining establishments was examined, it turned out that business was up by 18% over the comparable period in 1980. (This came as quite a surprise to the owner of the establishment. In fairness to complaining merchants, it should be noted that the situation faced by one merchant is insufficient grounds for projections to others.)
- o Many of the permit zone merchants selling day-use permits during the 1981 season complained that not only was it not increasing sales appreciably (those

that did buy permits bought little or nothing else), but that they were being associated with the bad publicity the project was receiving in the media. Several withdrew from the program as a result and none of the merchants expressed interest in selling the permits during the 1982 season.

- o The changes made in the program for the 1982 season softened most of the complaints from merchants. A series of interviews conducted near the end of this season with 12 merchants revealed that while most area merchants were unhappy with the program in general, they felt that the 1982 changes had reduced the program's impact on them. The changes perceived as most beneficial were elimination of weekdays from the program (especially among businesses catering to local residents such as beauty parlors), the exemption of the section of E. Cliff Drive near Twin Lakes State Beach and the lowering of the permit fee (although many felt it should be lowered even further).
- o The reduction of the permit zone eliminated many businesses from the 1982 zone which were in the 1981 zone. However, interviews revealed that some of these businesses still felt that the program was having an adverse effect on them by reducing beach usage in the area.

8 . SUMMARY AND CONCLUSIONS

This final chapter is intended to provide an overview of the Santa Cruz project and draw conclusions from the project which are of interest to other areas considering implementing their own preferential parking program.

8.1 PERMIT ZONE

There were three major considerations originally used in setting the size and location of the permit zone: inclusion of the entire impacted area, avoidance of spillover problems, and the economic feasibility of the program. As the planning process continued, however, rather than following a strictly rational process to set the zone boundaries, many of the decisions were made politically, based upon the expectations of both residents and non-residents of the zone. The relatively large size of the 1981 permit zone appears to be the result of no one wanting to have the zone boundary set just nearer to the beach than their house as they would then be most likely to suffer from any spillover problems, and also have to buy a permit if they wished to park inside the zone. However, once residents began dealing with the inconveniences of being in the permit zone (e.g., making provisions for guest parking) they were much less likely to want to be included during the second year. The zone boundaries for 1982 were very close to those which were originally planned based on aerial photographs taken in 1979. This smaller area appears to have served the needs of both residents and non-residents of the zone much better than did the previous year's zone boundaries.

The spillover problem, the major reason for having a large zone, was virtually non-existent in 1981; and in 1982, even with the much smaller zone, was confined to small areas near the

boundary and present on very few days. It appears that most people preferred buying a permit to walking even a few blocks from outside the permit zone. The spillover was also minimized due to heaviest beach usage being concentrated at Twin Lakes State Beach. The majority of the out-of-zone parking problems occurred in a very small area near this beach and are likely to be fully mitigated by the modest zone increases planned for 1983.

The final consideration in setting the zone size was economic. Larger areas are both more expensive to enforce and require a larger day-use permit sales effort. The larger area also probably had a more severe impact on local businesses, although limited data collected to measure this were inconclusive. In addition, while the higher revenue from permits and citations collected in the larger zone helped to pay for the program, these expenses were borne directly by non-resident (and in some cases resident) beach- users.

The iterative political process used to set the boundaries produced a satisfactory result. While this process was costly in terms of the time required to establish the final boundaries, it appears unlikely that these boundaries could have been set in advance by an objective process. In fact, even these boundaries may be changed at a later date if conditions warrant. The point at which the reduction in residents' parking problems is worth the inconveniences of the program is an entirely subjective decision. Also, the size of a zone necessary to avoid spillover problems is dependent on characteristics of the non-resident beach users. In addition, it is unlikely that political considerations could be eliminated from the decision-making process even if that were desirable, given the sensitivity of this type of program.

8.2 PERMITS AND PERMIT DISTRIBUTION

In general the permit system worked quite well. This was especially true of the second season's system. The largest number of complaints received concerned the price of permits and these complaints were sharply reduced by the reduction in price from \$5 to \$3 for day-use permits and the introduction of season permits. Important conclusions about the permit system include:

- o Mailing free permits to each resident in the zone required much less time and effort on the part of both the project administrators and area residents than a system requiring each resident to apply for their permits. (In addition, not providing free permits to all residents would probably have had severe political repercussions.) However, there were minor problems caused by this system. The use of the mail allowed for possible pilfering. Also, this system introduced more permits into the area than were needed by residents to provide adequate parking for their own vehicles. This reduced the market for guest permits. It also raised the possibility of a black market for unneeded, resident permits, although evidence of its actual existence is limited.
- o Guest permits were very inconvenient to use. However, it is unlikely that a much more convenient procedure can be devised, and these permits fulfilled an important role in the program by providing residents with greater flexibility. They were relatively popular in 1982 with one permit being sold per every five households.
- o The non-resident permit system operated much better in 1982 than in 1981. The use of enforcement personnel to sell permits saved a considerable amount in salaries. In addition, reducing the price from \$5 to \$3 increased sales levels and public acceptance. Also, the season permit available in 1982 was very favorably received when it was priced at \$10 at the beginning of the season. The sales level dropped off sharply, however, when the price was raised to \$20.
- o The use of merchants and field vendors was not a cost-effective method for selling permits to non-residents. New technologies such as vending machines may be more cost effective but these systems have not been proven at this time.

- o Business permits produced the most problems of any of the permit types. While the problems with employee permits were solved in 1982 when each employee was given a free permit, the problems with the customer permits were not solved. The latter type of permit was very inconvenient to use. Customers parking near the business often neglected to use any permit relying instead on the discretion of the enforcement officers. Although this has not caused inordinate difficulties to date, there is still a potential for future problems.
- o Special events permits were the least used type of permit. They were intended, however, to be used only for rare one-time events. They served this purpose quite well and provided the project administration with a high degree of flexibility.
- o Despite the large total number of permit types used by the program, most persons had a choice of only one or two types. Thus there was little confusion among the general public over this aspect of the program. Non-residents coming directly to the beach (the group most likely to be confused by the program) had a choice between only two permit types in 1982 and only one type of permit applicable to them in 1981.

8.3 PARK-AND-RIDE SHUTTLE BUS SERVICE

The shuttle bus service was the element of this demonstration which met with the least success. The service had very low ridership especially when compared to its high costs. Although the low ridership was in part due to non-residents' reluctance to shift from their cars, there were also many other contributing factors which are not necessarily inherent in such a service. These included:

- o The buses used were not particularly suited to carry beach users with their equipment. The addition of racks or use of open air buses may have provided much better service. Also, considering the low number of passengers per bus, smaller buses rather than the 45-foot transit vehicles used may have been more appropriate.
- o The publicity for the shuttle service was inadequate. While any shuttle service that relies on

passengers coming from a widespread area will have a certain amount of difficulty with publicity, this project faced a larger than normal amount of problems since it covered only a small portion of the many beaches in the area. Even with these problems it is likely that a more intensive signing campaign may have produced better results.

- o About half of the non-resident beach users chose to simply ignore the permit regulations. Had there been more publicity in 1981 about the amount of the fine for parking without a permit, some of these persons would have shifted to the shuttle bus.
- o Beach usage in general was down. While some of this was due to the permit program, a significant share of the reduction in usage was apparently due to exogenous variables. When beach usage is higher in Live Oak (or at other beaches with a higher usage) it may be feasible to run buses on shorter headways and thus attract a larger share of the non-residents in addition to having a larger pool of beach users to draw from.
- o The main park-and-ride lot (the 17th Ave. lot) was located a considerable distance from the more popular beaches. Being located closer to the ocean would have allowed for shorter headways and travel times. This would have been especially convenient for those who wished to return to their cars at some time during the day to exchange equipment or get lunch.

Despite these problems, the passengers who did use the shuttle were quite satisfied with it. Had the publicity and equipment problems been solved, the system may have met with greater success.

8.4 PLANNING AND IMPLEMENTATION

The planning process for this demonstration is probably a reasonable representative of what has been encountered in other locations. The project started with a grant request, went through a series of public meetings and approvals by various government agencies at the federal, state and local level and was passed by the County Board. A year and a half elapsed, however, between the time the preliminary grant application was filed and

the day the program was approved by the County Board. The majority of this time was spent not on the planning of the program per se, but rather on the coordination of all of the various agencies involved. While the process was slightly more involved for this area than it would have been for most locations at least in part because Live Oak is under county rather than city jurisdiction, it is likely that any location would require a fairly lengthy planning period.

Also contributing to the long time required between the start of planning and the beginning of actual operations was the relatively long implementation phase. The actual program did not begin until nearly a year after the time the enabling ordinance was passed. While some of the length of this period was due to the timing of the passage of the ordinance (the ordinance was passed in late July, and thus the program either had to be started immediately or postponed until the following summer), much of the delay would have occurred in any event. Nearly eight months passed between the time the ordinance was passed and the 17th Ave. parking lot was completed. The delivery of the enforcement vehicles and the hiring and training of project personnel also required a considerable amount of time.

One other aspect of the planning and implementation process that was extremely important was the degree of flexibility built into the program. The project personnel recognized the need for this flexibility early in the planning stages. They actively sought citizen participation through direct mailings to area residents and public meetings. They were also willing to substantially change the program during the first year and totally revise it prior to the second year. This flexibility allowed large cost savings and resulted in a program during the second year much better suited to the needs of residents, non-residents and businesses.

8.5 PUBLIC ACCEPTANCE

The various reactions of different members of the public were largely dependent on where they lived. Those who lived in the permit zone, especially in the smaller 1982 zone, were in general quite pleased with the program. The program accomplished its main goal of reducing traffic and parking problems in the area. Also, the major problem this group had with the project--parking difficulties for guests--was substantially mitigated by elimination of weekdays from the program.

The residents of the area immediately adjacent to the zone were the most disgruntled group, especially prior to the beginning of the 1981 program. These residents were most likely to experience problems from parking overflow from the zone while not being allowed to park near the beach without a day-use or season visitor permit. Other Santa Cruz County residents who lived further from the permit zone were also quite upset about not being able to park free near the beach. Prior to the start of the program, and during the first two months of program operation, numerous unfavorable letters from county residents were received by county officials and published in local newspapers. Once East Cliff Dr. was exempted, however, these complaints were greatly reduced. During 1982 virtually no complaints about having to pay to park were received from county residents although several complaints concerning overflow problems were received from residents of the area adjacent to the zone near Twin Lakes Beach.

The beach users who live outside of Santa Cruz County were much less vocal in their objections to the program. There are several possible reasons for this. First, they were less likely to be daily users of the Live Oaks beaches. Also switching to another beach in the area was less likely to be problematic for them since there would be a smaller change in distance to the beach relative to the total distance. In addition to being less affected by the program, beach users from outside the county had fewer chances to express their opinions. Those who had switched beaches would not have been included in either of the post-

implementation surveys. This group is also probably less likely to write to local newspapers or county officials (for several reasons including the extra difficulty in finding the correct addresses). Thus it is hard to determine how well these beach users accepted the program.

The reactions of the owners of businesses located in the zone were similar to those of county residents from outside the zone. During the first several months of program operation, local businesses complained of severe declines in sales. The degree to which these declines were caused by the project as opposed to exogenous forces, such as weather or the economic recession, is not known. In 1982 there were substantially fewer complaints. The changes in the program placated most of the merchants to a large degree, although few of them were in favor of the program even with the changes.

8.6 IMPLICATIONS FOR OTHER AREAS

Many of the conclusions discussed in the previous sections are dependent on site-specific characteristics of the Live Oak area. However there are also several conclusions which can be transferred to many other sites. These include:

- o Parking programs need a large amount of lead time between the start of planning and actual implementation. Time consuming political battles are likely to occur almost anywhere this type of program is proposed. In addition, large amounts of time are required for many of the other implementation activities such as hiring and training personnel and bidding and negotiating contracts.
- o Parking programs should be confined to the areas and times with the largest impacts. Operating this type of program over large areas and at times with low demand is cost inefficient and generates substantial amounts of negative publicity.
- o The effectiveness of park-and-ride shuttlebus systems as an alternative is dependent on being able to maintain short headways and travel times and the use of vehicles designed for the specific purpose. In order to justify the costs of this high level of

service, however, a relatively large ridership is needed. Thus this type of service should only be provided in areas with a large potential market, and if it is provided, a full commitment to making it a viable alternative must be made.

- o The use of field vendors to sell permits is very expensive, especially if there are large periods of time when almost no permits are sold (e.g., weekdays and mornings) or permits are sold over a relatively large area. There are not as of yet, however, proven alternatives.
- o Enforcement of parking programs is expensive. In order for the enforcement to be an effective deterrent frequent checks must be made. This level of enforcement is especially expensive if conducted over a large zone.
- o Spillover problems can be held to a minimum relatively easily. For this demonstration, a zone only a few blocks wide was sufficient to discourage people from parking on adjacent streets and walking to the beach.
- o Although the Santa Cruz parking permit program was very effective in reducing traffic and parking problems, it also reduced beach-usage while creating an adverse public reaction among local merchants and many non-resident beach users. It is very hard to get people to either switch from their autos to the shuttle bus system or increase the number of passengers per vehicle, the two alternatives which would achieve both of the desired results (a decrease in the number of parked vehicles without a decrease in the number of beach users). Thus any area which is considering implementing such a program should recognize the real potentials for these adverse side effects.

APPENDIX A
DATA COLLECTION ACTIVITY DESCRIPTIONS

AERIAL PHOTOGRAPHY

The purpose of the aerial photographs was to measure overall beach usage and parking volumes in the project area. The photographs encompassed the parking areas and beach areas adjacent to, as well as within the permit zone, thereby enabling future identification of "spillover" effects resulting from implementation of the permit program. Pre-demonstration aerial photographs were also taken in 1979 but were repeated in 1980 for four reasons: 1) dates of photographs in 1979 were past peak summer period (August 21, 23, 25 and 26); 2) the year 1979 may have been an unusual year due to an early summer gas crisis; 3) the results from 1979 may be unreliable as the altitude the photographs were taken at was too high for clear counting purposes; and 4) a second year of data increases power to detect differences attributable to the demonstration.

The 1980 photographs were taken August 7, 9, 10, and 12. The 1981 photographs were taken August 4, 6, 8, and 9. These dates included two weekdays and two weekend days each year. For each day, three sets of photographs were scheduled: at 12 noon, at 2 PM, and at 5 PM. (Since morning coastal fog is a nearly every-day occurrence in Santa Cruz, scheduling any flight before 12 noon was impractical.) Each flight required approximately 25 exposures of the beach area (scale of 1:3000) and three of the parking area (scale of 1:9600*). The contractor then provided a contact print of each exposure, enabling a research assistant to count the people on the beaches and the parked cars in the photographs with the aid of a magnifying lupe.

*Distinguishing people on a beach in an aerial photograph is more difficult than counting parked cars; therefore, the beach photographs must be taken from a much lower altitude.

TRAFFIC COUNTS

The purpose of the traffic counts was to calibrate the hourly distribution of traffic volumes in and adjacent to the permit zone before and after implementation of the permit program, in order to determine potential impacts of the program on traffic congestion in the permit zone. We have two years of pre-implementation and one year of post-implementation traffic count data.

The County of Santa Cruz hired a contractor to conduct seven days of traffic counts in both directions at the seven access points to the permit zone. All counts were conducted in August as follows: 1981--3rd through 9th; 1980--4th through 10th; and 1979--18th through 24th. Counters were placed at all seven access points to the permit zone, three locations in the Seabright area adjacent to the permit zone, and one location on the main access road to the City of Santa Cruz from the north (data from outside the permit zone were provided by the city).

HOUSEHOLD TELEPHONE SURVEYS

The purpose of the 1980, 1981 and 1982 household telephone surveys of permit zone and nearby residents was to obtain pre- and post-implementation information on residents' beach usage, auto ownership, attitudes toward the parking and traffic situations in their neighborhoods and related issues. The surveys were conducted each year during the last week in July in two areas: the permit zone and the Seabright ("control") area.

The Seabright neighborhood area was included in the survey because of its proximity to the permit zone. Like the permit zone, the Seabright area beaches are popular among nonresidents. This area is used to estimate the impact of exogenous changes on the permit project and parking space demand.

The County of Santa Cruz provided tentative address boundaries and all street names included in the permit zone. Similar information was obtained for the Seabright area. This information allowed us to use a Haines Crisscross Directory (which lists telephone numbers by addresses) to draw a random sample of households for both areas.

In 1980 a total of 439 interviews were completed--399 were permit zone residents and 40 were Seabright area residents. In 1981, two samples were drawn--a new sample and a subset of those interviewed in 1980. The new sample consisted of 215 permit zone and 39 Seabright residents. The follow-up sample consisted of 232 permit zone and 21 Seabright residents. Two samples were also drawn in 1982. The new sample consisted of 99 persons who lived in the 1982 zone, 156 persons who were residents of the 1981 zone but were not included in the 1982 zone and 52 residents of the Seabright area. The follow-up sample consisted of 140 project area residents. The follow-up samples have not been used in this evaluation due to biases introduced by reactivity from having the same group interviewed several times.

BEACH USER SURVEYS

The purpose of the beach user surveys was to obtain pre- and post-implementation data on the characteristics of the beach user population, their transportation mode and parking behavior, their frequency of use of beaches in the permit zone, and related variables.

Surveys were conducted in 1980, 1981 and 1982 over four days in early August (two weekdays and two weekend days--the same days that the aerial photographs were taken in 1980 and 1981).

The coastline within the permit zone is approximately 3.4 miles long and has seven major beaches. Eight major access points to these beaches were determined. Survey workers were stationed along the beach at each of the eight points. To ensure that a random sample of beach users was obtained, the survey workers were instructed to interview the first person to pass their location (either arriving or leaving the beach) at a specific time. Interviewing began at 10 AM (one location started at 8 AM because early morning surfing was popular at this spot) and four persons per hour were interviewed at 15-minute intervals until 6 PM. A total of 915 completed questionnaires were obtained for the four-day period in 1980, 924 in 1981, and 849 in 1982. The refusal rate was very low--about 6% in 1980 and 1981 and 11% in 1982.

LICENSE PLATE STUDIES

The purposes of the 1979, 1981, and 1982 license plate studies were to obtain pre- and post-implementation data on the supply of parking in the permit zone by time of day, the relative proportions of resident and non-resident automobiles parked in the permit zone by time of day, parking duration, and violation rates in the permit zone.

The studies were performed on two weekdays and two weekend days in late August 1979 and mid-August in 1981 and 1982. Ten study assignments, distributed relatively evenly along the three-mile coastline within the project area, were selected as a representative sample of streets and parking areas from which to collect license plate data. Surveyors at all ten sample sites did hourly "sweeps" of their assigned streets and lots from 9 AM to 5 PM (8 AM start in the surfing area) each day.

The license plate study areas were divided into those which were inside both years' zone, those which were in the 1981 zone only and those which were along the exempted portion of East Cliff Drive. In several cases this meant areas were subdivided into two or more sections as they crossed over zone boundaries. Straight-forward counts were then used in order to determine occupancy rates, violation rates and percent of resident and non-resident vehicles.

SHUTTLEBUS SURVEY

The purposes of the 1981 shuttlebus survey were to determine origins and destinations of riders, impressions about the shuttlebus service, and brief demographic profiles of users.

The survey was conducted on two weekdays (August 18 and 20) and two weekend days (August 22 and 23). During each of these days, survey workers rode all buses throughout the day (two buses were used on weekdays, three on weekends). Questionnaires were distributed to all riders except those standing (infrequent) and young children, and collected as riders left the bus.

A total of 284 usable questionnaires was collected. It should be noted that due to a manpower shortage, implementation of this survey was delayed until after the other data collection activities were completed. Unfortunately, the exemption of East Cliff Drive near Twin Lakes Beach from permit requirements resulted in a sharp decline in shuttlebus ridership. Thus while 283 is a small sample size for a comprehensive four-day on-board survey, a total of just 758 riders was recorded for the entire period and this includes many duplicate riders and young children.

TABLE A-1. PROJECT EVALUATION SURVEYS

<u>Survey</u>	<u>Sampling Method</u>	<u>Target Population</u>	<u>Year</u>	<u>Refusal Rate</u>	<u>Sample Size</u>
Beach-User Survey	First person entering beach during 15 minute intervals at 8 locations along the beach	Persons using the beach on 2 weekdays and 2 weekend days each year (4-6000 persons)	1980 1981 1982	6% 6% 11%	915 924 849
Household Telephone Survey	Random selection* from the telephone directories	Households in the permit zone (a total of 3300 households, 654 of which were in the zone both years)	1980 1981 1982	19% 27% 10%	399 215 255***
Household Telephone Survey	Random selection* from the telephone directories	Households in the Seabright Area (528 households)	1980 1981 1982	17% 5% 17%	40 39 52
Shuttlebus Survey	All persons over 16 years old boarding bus & not previously surveyed	All riders on two weekdays and two weekend days (758 riders)	1981	***	284
Permit	All persons buying a permit who were not previously surveyed	All permit buyers from July 31 through September 2 (1536)	1982	***	338

*Additional subsamples of the 1980 sample which were recontacted in 1981 and 1982 were not used due to biases.
 **156 of these were outside of the 1982 zone, but had been in the 1981 zone.

*** Since refusals due to having been previously surveyed were aggregated with other refusals, no meaningful refusal rate can be computed.

APPENDIX B
SURVEY INSTRUMENTS

SURVEY INSTRUMENTS AND RESPONSE RATES

This Appendix contains a copy of each of the survey instruments used in the various data collection efforts. To the right of each question appear the number of valid responses followed by a slash and the number of persons who were asked this question. The number of persons asked a given question may be substantially less than the number of persons surveyed, as the question may be applicable to only a portion of the survey respondents. In most cases, the subgroup of persons asked a given question is evident from the question itself. In all cases, the directions to the surveyor which were included on the instrument to indicate who should be asked which questions can be used to determine which subgroup was asked a given question.

On the Household Telephone Survey instruments, 3 sets of numbers appear to the right of each question. The top set of numbers is the number of valid responses and number of persons questioned in the area within the permit zone in 1981 and outside of the zone in 1982. The second set of numbers are for the households which were within the permit zone during both 1981 and 1982. The third set of numbers corresponds with the responses from the Seabright Area.

SANTA CRUZ HOUSEHOLD TELEPHONE SURVEY (BEFORE)

Surveyor _____

Respondent Address _____

Respondent Telephone # ____ - ____ - ____ (1-7)

Hello, my name is _____ and I'm calling for Santa Cruz County. We're doing a study on parking availability in your area. Would you take a minute to answer a few questions?

Is this _____? (If no, thank person and end interview.)
(read address)

How many people 16 years of age or older live in your household? ____ (8-9)

How many of them are males? ____ (10-11)

Determine appropriate respondent from selection key below.

May I speak to _____?

If now speaking to different person, reintroduce yourself and purpose of survey.

If this person is not available, set up an interview time and note below and on call record sheet.

Name _____ Time _____

NUMBER OF MEN IN HOUSING UNIT	NUMBER OF ADULTS IN HOUSING UNIT			
	1 Adult	2 Adults	3 Adults	4 or more
	0 Men	Adult	Youngest Woman	Oldest Woman
	1 Man	Adult	Woman	Man
	2 Men		Youngest Man	Oldest Man
	3 Men			Oldest Man
4 or More				Youngest Man

6

1. How many days per month do you go to the beaches in the Live Oak (Sea Bright) area?

272/272
125/127
40/40

2. How do you usually get there?

- | | |
|----------------------|-------------------|
| 1() Auto, driver | 5 () Taxi |
| 2() Auto, passenger | 6 () Bicycle |
| 3() Motorcycle | 7 () Walk |
| 4() Bus | 8 () Other _____ |

191/195
93/93
34/34

- 3a. How many vehicles are operated in Santa Cruz by members of your household?

272/272
127/127
40/40

_____ (IF NONE, SKIP to Q.9a)

- 3b. How many vehicles are registered at this address? _____

244/247
121/121
39/39

4. How many off-street parking spaces, like in your driveway, are available to you here?

- | | | |
|--------|---------|-----------------|
| 1() 0 | 3 () 2 | 5 () 4 |
| 2() 1 | 4 () 3 | 6 () 5 or more |

246/247
121/121
39/39

- 5a. Would you say that on weekends during the summer, finding a parking place on the street near your home is:

- | | <u>Weekend</u> | <u>Weekday</u> |
|--------------------|----------------|----------------|
| 1 Very difficult | () | () |
| 2 Fairly difficult | () | () |
| 3 Fairly easy, or | () | () |
| 4 Very easy? | () | () |
| 5 (Don't know) | () | () |

247/247
121/121
39/39

- 5b. How about on weekdays during the summer?

247/247
121/121
39/39

6. How frequently do you park on the street? (READ CHOICES)

- 1() All or most of the time
2() Sometimes
3() Occasionally, or
4() Never? (SKIP to Q.9a.)

246/247
121/121
39/39

7a. During the summer, how long does it usually take you, or members of your household, to find a parking place on the street near your home on weekends?

121/123
55/56
25/25

	<u>Weekends</u>	<u>Weekdays</u>
Find a space immediately	1()	1()
1-5 minutes	2()	2()
6-10 minutes	3()	3()
11-15 minutes	4()	4()
16-20 minutes	5()	5()
21-30 minutes	6()	6()
Over 30 minutes	7()	7()
(Don't know)	8()	8()

7b. How about on weekdays during the summer?

121/123
55/56
25/25

8. During which times of day do you usually need to find a parking space on the street near your home?
(READ CHOICES IF NECESSARY)

- 1() Early to mid-morning, before 10 AM
- 2() Late morning to midday, 10 AM - 12 PM
- 3() Early afternoon to mid-afternoon, 12:01 - 4 PM
- 4() Late afternoon to early evening, 4:01 - 7 PM
- 5() Evening to late evening, after 7 PM
- 6() It varies

119/123
50/56
25/25

9a. Would you say that on weekends during the summer the traffic flow on the streets within two blocks of your house is... (READ CHOICES)

	<u>Weekends</u>	<u>Weekdays</u>
1 Very light	()	()
2 Fairly light	()	()
3 Fairly heavy, or	()	()
4 Very heavy?	()	()
5 (Don't know)	()	()

270/272
127/127
40/40

9b. How about on weekdays during the summer?

270/272
127/127
40/40

10a. On weekends, at what time of day is traffic the heaviest within two blocks of your house?

	<u>Weekends</u>	<u>Weekdays</u>
1 Early to mid-morning, Before 10AM	()	()
2 Late morning to midday, 10AM-12PM	()	()
3 Early afternoon to mid-afternoon, 12:01PM-4PM	()	()
4 Late afternoon to early evening, 4:01PM-7PM	()	()
5 Evening to late evening, After 7PM	()	()
6 No difference among times of day	()	()
7 (Don't know)	()	()

271/272
127/127
40/40

10b. How about on weekdays?

270/272
127/127
40/40

Now I would like to ask a few final questions for statistical purposes.

11. Are you...

- 1() A permanent resident (SKIP TO Q.13)
2() A summer resident, or
3() A visitor to Santa Cruz County?

272/272
126/127
40/40

12. Where is your permanent residence:

City or County _____

State _____

6/8
3/14
1/5

13. Do you own or rent your residence here?

- 1() Own
2() Rent
3() (Don't know)

270/272
126/127
39/40

14. Which of the following categories best applies to you?

- 1() Employed 4() Retired
2() Student 5() Not currently employed
3() Homemaker 6() Other _____

271/272
127/127
40/40

15. Which of the following categories includes your age?

- 1() Under 16 3() 25-34 5() 45-64 7() Refused
2() 16-24 4() 35-44 6() 65 or older

272/272
127/127
40/40

16. Would you say your yearly family income--before taxes and including everyone in your household-- is ...

- 1() Less than \$5,000/year 4() Over \$35,000
2() Between \$5,000 and \$15,000 5() (Don't know)
3() Between \$15,000 and \$35,000 6() (Refused)

271/272
127/127
40/40

17. Finally, do you have any additional comments about the parking and traffic situation in your neighborhood?

200/272
92/127
34/40

18. We may want to interview you again once Santa Cruz County has started a new parking program in this area. May I please have your name so that we will know whom to recontact in the next survey?

_____ (NOTE IF REFUSED)

270/272
127/127
40/40

Thank you very much for your help on this survey. The County of Santa Cruz really appreciates your assistance and time. Good-bye.

19. Sex (observed)

1() Male

B-7

2() Female

1981 SANTA CRUZ HOUSEHOLD TELEPHONE SURVEY (DURING)

Surveyor _____

Respondent Address _____

Respondent Telephone # _____ - _____

Hello, my name is _____ and I'm calling for Santa Cruz County. We're doing a study on parking availability in your area. Would you take a minute to answer a few questions?

Is this _____? (If no, thank person and end interview.)
(read address)

Because of the research method we are using, first I must determine whom in your household I should interview.

How many people 16 years of age or older live in your household? _____

How many of them are males? _____

Determine appropriate respondent from selection key below.

May I speak to _____?

If now speaking to different person, reintroduce yourself and purpose of survey.

If this person is not available, set up an interview time and note below and on call record sheet.

Name _____ Time _____

NUMBER OF ADULTS IN HOUSING UNIT

NUMBER OF MEN IN HOUSING UNIT		1 Adult	2 Adults	3 Adults	4 or more
	0 Men	Adult	Youngest Woman	Middle Woman	2nd Oldest Woman
	1 Man	Adult	Woman	Oldest Woman	Middle Woman
	2 Men		Oldest Man	Woman	Oldest or Youngest Man
	3 Men			Middle Man	Middle Man
	4 or More				2nd Oldest Man

5

1. How many days per month do you go to the beaches in the Live Oak (Sea Bright) area?

135/135
80/80
39/39

2. How do you usually get there?

- | | |
|-----------------------|-------------------|
| 1 () Auto, driver | 5 () Taxi |
| 2 () Auto, passenger | 6 () Bicycle |
| 3 () Motorcycle | 7 () Walk |
| 4 () Bus | 8 () Other _____ |

96/96
61/61
39/39

- 3a. How many vehicles are operated in Santa Cruz by members of your household?

(IF NONE, SKIP TO Q. 9a)

139/135
80/80
39/39

- 3b. How many vehicles are registered at this address? _____

126/126
75/75
36/36

4. How many off-street parking spaces, such as in your driveway, are available to you here?

- | | | |
|---------|---------|-----------------|
| 1 () 0 | 3 () 2 | 5 () 4 |
| 2 () 1 | 4 () 3 | 6 () 5 or more |

126/126
75/75
36/36

- 5a. Would you say that on weekends during the summer, finding a parking place on the street near your home is:

	<u>Weekend</u>	<u>Weekday</u>
--	----------------	----------------

- | | | |
|-----------------------------|-----|-----|
| 1 Very difficult | () | () |
| 2 Fairly difficult | () | () |
| 3 Fairly easy, or | () | () |
| 4 Very easy? | () | () |
| 5 (Don't know) | () | () |
| 6 No street parking allowed | () | () |

125/126
75/75
36/36

- 5b. How about on weekdays during the summer?

125/126
75/75
36/36

6. How frequently do you park on the street? (READ CHOICES)

- 1 () All or most of the time
2 () Sometimes
3 () Occasionally, or
4 () Never? (SKIP TO Q. 9a.)

126/126
75/75
36/36

7a. During the summer, how long does it usually take you, or members of your household, to find a parking place on the street near your home on weekends?

	<u>Weekends</u>	<u>Weekdays</u>
Find a space immediately	1()	1()
1-5 minutes	2()	2()
6-10 minutes	3()	3()
11-15 minutes	4()	4()
16-20 minutes	5()	5()
21-30 minutes	6()	6()
Over 30 minutes	7()	7()
(Don't know)	8()	8()

69/69
32/33
27/27

7b. How about on weekdays during the summer?

69/69
33/33
27/27

8. During which times of day do you usually need to find a parking space on the street near your home?
(READ CHOICES IF NECESSARY)

- 1() Early to mid-morning, before 10 AM
- 2() Late morning to midday, 10 AM - 12 PM
- 3() Early afternoon to mid-afternoon, 12:01 - 4 PM
- 4() Late afternoon to early evening, 4:01 - 7 PM
- 5() Evening to late evening, after 7 PM
- 6() It varies

69/69
32/33
27/27

9a. Would you say that on weekends during the summer the traffic flow on the streets within two blocks of your house is... (READ CHOICES)

	<u>Weekends</u>	<u>Weekdays</u>
1 Very light	()	()
2 Fairly light	()	()
3 Fairly heavy, or	()	()
4 Very heavy?	()	()
5 (Don't know)	()	()

135/135
80/80
39/39

9b. How about on weekdays during the summer?

135/135
80/80
39/39

10a. On weekends, at what time of day is traffic the heaviest within two blocks of your house?

	<u>Weekends</u>	<u>Weekdays</u>
1 Early to mid-morning, Before 10AM	()	()
2 Late morning to midday, 10AM-12PM	()	()
3 Early afternoon to mid-afternoon, 12:01PM-4PM	()	()
4 Late afternoon to early evening, 4:01PM-7PM	()	()
5 Evening to late evening, After 7PM	()	()
6 No difference among times of day	()	()
7 (Don't know)	()	()
8 Peak periods	()	()

135/135
80/80
39/39

10b. How about on weekdays?

135/135
80/80
39/39

11. Do you know about the summer parking permit program in the Live Oak Area of Santa Cruz County?

- 1() Yes (SKIP TO Q. 12a.)
 2() No
 3() Unsure } [Read explanation below]

The County of Santa Cruz is testing a parking permit program designed to reduce traffic and parking congestion in the Live Oak Beach Areas during the summer months. Residents of the area are able to obtain parking permits for themselves and their guests which allow them to park on the street. Nonresidents are required to pay a \$5 daily fee to park on the street near beach areas, or they can park free in nearby special parking lots and take a free shuttlebus to the beach. Does this sound at all familiar to you?

IF YES, GO TO Q. 12a.

IF STILL NO, Have you used any permits?

- 1() Yes, GO TO Q. 12a.
 2() No, GO TO Q. 14a.

135/135
80/80
N/A

1/2
0/1
N/A

12a. Do you have a resident permit?

- 1() No (GO TO Q. 12c)
 2() Yes

135/135
80/80
N/A

12b. Was there any difficulty obtaining the permit?

- 1() No
 2() Yes, (Explain) _____

121/121
65/65
N/A

4/6
3/5
N/A

12c. How many others living at the same address have resident permits? _____

129/135
73/80
N/A

13a. Do you yourself have any guest permits?

- 1() No (GO TO Q. 13b) _____
 2() Yes, how many _____

135/135
80/80
N/A

9/9
14/14
N/A

13b. How often have you used them?

- 1() 4 or more times/week
 2() 1-4 times/week
 3() Less than 4 times a month
 4() Haven't used them

8/9
14/14
N/A

13c. Have you had any difficulty using the guest permit(s)?

- 1() No
 2() Yes, (Explain) _____

7/9
12/14
N/A

1/1
2/2
N/A

13d. Do you know of any instances in which someone has sold or given a guest or resident permit to somebody who was not a guest or resident?

- 1() No (GO TO Q. 14a)
2() Yes

134/135
80/80
N/A

13e. Was it a guest or resident permit?

- 1() Guest
2() Resident
3() Both
4() Not sure

13/13
7/8
N/A

13f. Do you think this happens often?

- 1() Yes
2() No
3() Don't know

13/13
7/8
N/A

FOR PERSONS UNFAMILIAR WITH SUMMER PARKING PERMIT PROGRAM; NO OR UNSURE TO Q. 11, ASK - Before this call, did you know . . .

14a. Do you know about the free shuttle bus from nearby parking lots to the beach?

- 1() No (GO TO Q. 15a)
2() Yes

135/136
80/80
N/A

14b. Have you ever used it?

- 1() No (GO TO Q. 15a)
2() Yes

130/130
79/79
N/A

14c. About how many times? _____

9/9
2/3
N/A

14d. Have you had any difficulty using it? (If yes, explain)

0/9
0/3
N/A

15a. Would you say that parking on weekends this summer on the street near your home is:

135/135
80/80
N/A

	<u>Weekends</u>	<u>Weekdays</u>
1 Much more difficult	()	()
2 More difficult	()	()
3 About the same	()	()
4 Easier	()	()
5 Much easier than last summer	()	()
6 (Don't read) No parking allowed	()	()
7 (Don't read) Don't know	()	()
8 (Not here last summer)	()	()

15b. How about on weekdays?

135/135
80/80
N/A

16a. Would you say that on weekends this summer, traffic flow on the street within 2 blocks of your house is:

135/135
80/80
N/A

	<u>Weekends</u>	<u>Weekdays</u>
1 Much lighter	()	()
2 Lighter	()	()
3 About the same	()	()
4 Heavier	()	()
5 Much heavier than <u>last</u> summer	()	()
6 (Don't read) Don't know	()	()
7 (Not here last summer)	()	()

16b. What about on weekdays?

135/135
80/80
N/A

17. Overall would you say that this parking permit program is:

135/135
78/80
N/A

- 1() A very good idea
- 2() A good idea
- 3() A bad idea
- 4() A very bad idea, or
- 5() Neither a good nor bad idea

18. If it were up to you, for next summer would you...

129/135
75/80
N/A

- 1() Keep the program as it is?
- 2() Eliminate it altogether? Why? _____
- 3() Change it? How would you change it? _____

19/28
7/8
N/A

49/51
25/29
N/A

Now I would like to ask a few final questions for statistical purposes.

19. Are you...

134/135
79/80
39/39

- 1() A permanent resident (SKIP TO Q. 21)
- 2() A summer resident, or
- 3() A visitor to Santa Cruz County?

20. Where is your permanent residence:

3/3
8/8
6/6

City or County _____

State _____

21. Do you own or rent your residence here?

134/135
79/80
39/39

- 1() Own
- 2() Rent
- 3() (Don't know)

22. Which of the following categories best applies to you?
- | | |
|----------------|-----------------------------|
| 1() Employed | 4() Retired |
| 2() Student | 5() Not currently employed |
| 3() Homemaker | 6() Other _____ |

134/135
79/80
39/39

23. Which of the following categories includes your age?
- | | | | |
|---------------|------------|------------------|----------------|
| 1() Under 16 | 3() 25-34 | 5() 45-64 | 7() (Refused) |
| 2() 16-24 | 4() 35-44 | 6() 65 or older | |

134/135
78/80
39/39

24. Would you say your yearly family income--before taxes and including everyone in your household--is...
- | | |
|------------------------------------|--------------------|
| 1() Less than \$5,000/year | 4() Over \$35,000 |
| 2() Between \$5,000 and \$15,000 | 5() (Don't know) |
| 3() Between \$15,000 and \$35,000 | 6() (Refused) |

134/135
79/80
39/39

25. Finally, do you have any additional comments about the parking and traffic situation in your neighborhood?
- _____
- _____
- _____

12/35
28/80
22/39

Thank you very much for your help on this survey. The County of Santa Cruz really appreciates your assistance and time.

135/135
80/80
39/39

26. Sex (from respondent key)
- | |
|-------------|
| 1() Male |
| 2() Female |

1982 SANTA CRUZ HOUSEHOLD TELEPHONE SURVEY (DURING)

Surveyor _____

Respondent Address _____

Respondent Telephone # _____ (1-7)

Hello, my name is _____ and I'm calling for Santa Cruz County. We're doing a study on parking availability in your area. Would you take a minute to answer a few questions?

Is this _____? (If no, thank person and end interview.)
(read address)

Because of the research method we are using, first I must determine whom in your household I should interview.

How many people 16 years of age or older live in your household? _____ (8-9)

How many of them are males? _____ (10-11)

Determine appropriate respondent from selection key below.

May I speak to _____?

If now speaking to different person, reintroduce yourself and purpose of survey.

If this person is not available, set up an interview time and note below and on call record sheet.

Name _____ Time _____

		NUMBER OF ADULTS IN HOUSING UNIT			
NUMBER OF MEN IN HOUSING UNIT		1 Adult	2 Adults	3 Adults	4 or more
	0 Men	Adult	Oldest Woman	Youngest Woman	Youngest Woman
	1 Man	Adult	Man	Man	Oldest Woman
	2 Men		Oldest Man	Youngest Man	Youngest Man
	3 Men			Youngest Man	Oldest Man
	4 or More				Oldest Man

3

1982 SANTA CRUZ HOUSEHOLD TELEPHONE SURVEY (DURING)

Surveyor _____

Respondent Address _____

Respondent Telephone # _____ - _____ (1-7)

Hello, my name is _____ and I'm calling for Santa Cruz County. We're doing a study on parking availability in your area. Would you take a minute to answer a few questions?

Is this _____? *(If no, thank person and end interview.)*
(read address)

Because of the research method we are using, first I must determine whom in your household I should interview.

How many people 16 years of age or older live in your household? _____ (8-9)

How many of them are males? _____ (10-11)

Determine appropriate respondent from selection key below.

May I speak to _____?

If now speaking to different person, reintroduce yourself and purpose of survey.

If this person is not available, set up an interview time and note below and on call record sheet.

Name _____ Time _____

		NUMBER OF ADULTS IN HOUSING UNIT			
NUMBER OF MEN IN HOUSING UNIT		1 Adult	2 Adults	3 Adults	4 or more
	0 Men	Adult	Oldest Woman	Oldest Woman	Youngest Woman
	1 Man	Adult	Woman	Youngest Woman	Man
	2 Men		Youngest Man	Youngest Man	Youngest Woman
	3 Men			Oldest Man	Woman or Youngest Woman
	4 or More				Youngest Man

1

1982 SANTA CRUZ HOUSEHOLD TELEPHONE SURVEY (DURING)

Surveyor _____

Respondent Address _____

Respondent Telephone # _____ (1-7)

Hello, my name is _____ and I'm calling for Santa Cruz County. We're doing a study on parking availability in your area. Would you take a minute to answer a few questions?

Is this _____? (If no, thank person and end interview.)
(read address)

Because of the research method we are using, first I must determine whom in your household I should interview.

How many people 16 years of age or older live in your household? _____ (8-9)

How many of them are males? _____ (10-11)

Determine appropriate respondent from selection key below.

May I speak to _____?

If now speaking to different person, reintroduce yourself and purpose of survey.

If this person is not available, set up an interview time and note below and on call record sheet.

Name _____ Time _____

NUMBER OF ADULTS IN HOUSING UNIT

NUMBER OF MEN IN HOUSING UNIT		1 Adult	2 Adults	3 Adults	4 or more
	0 Men	Adult	Youngest Woman	Youngest Woman	Oldest Woman
	1 Man	Adult	Man	Oldest Woman	Man
	2 Men		Oldest Man	Woman	Oldest Woman
	3 Men			Youngest Man	Woman or Oldest Woman
	4 or More				Oldest Man

2

1982 SANTA CRUZ HOUSEHOLD TELEPHONE SURVEY (DURING)

Surveyor _____

Respondent Address _____

Respondent Telephone # _____ - _____ (1-7)

Hello, my name is _____ and I'm calling for Santa Cruz County. We're doing a study on parking availability in your area. Would you take a minute to answer a few questions?

Is this _____? *(If no, thank person and end interview.)*
(read address)

Because of the research method we are using, first I must determine whom in your household I should interview.

How many people 16 years of age or older live in your household? _____ (8-9)

How many of them are males? _____ (10-11)

Determine appropriate respondent from selection key below.

May I speak to _____?

If now speaking to different person, reintroduce yourself and purpose of survey.

If this person is not available, set up an interview time and note below and on call record sheet.

Name _____ Time _____

NUMBER OF ADULTS IN HOUSING UNIT

NUMBER OF MEN IN HOUSING UNIT		1 Adult	2 Adults	3 Adults	4 or more
	0 Men	Adult	Oldest Woman	Middle Woman	2nd Oldest Woman
	1 Man	Adult	Man	Youngest Woman	Middle Woman
	2 Men		Youngest Man	Oldest Man	Oldest or Youngest Woman
	3 Men			Middle Man	Middle Man
	4 or More				2nd Youngest Man

4

1982 SANTA CRUZ HOUSEHOLD TELEPHONE SURVEY (DURING)

Surveyor _____

Respondent Address _____

Respondent Telephone # _____ - _____ (1-7)

Hello, my name is _____ and I'm calling for Santa Cruz County. We're doing a study on parking availability in your area. Would you take a minute to answer a few questions?

Is this _____? (If no, thank person and end interview.)
(read address)

Because of the research method we are using, first I must determine whom in your household I should interview.

How many people 16 years of age or older live in your household? _____ (8-9)

How many of them are males? _____ (10-11)

Determine appropriate respondent from selection key below.

May I speak to _____?

If now speaking to different person, reintroduce yourself and purpose of survey.

If this person is not available, set up an interview time and note below and on call record sheet.

Name _____ Time _____

NUMBER OF ADULTS IN HOUSING UNIT

NUMBER OF MEN IN HOUSING UNIT		1 Adult	2 Adults	3 Adults	4 or more
	0 Men	Adult	Youngest Woman	Middle Woman	2nd Oldest Woman
	1 Man	Adult	Woman	Oldest Woman	Middle Woman
	2 Men		Oldest Man	Woman	Oldest or Youngest Man
	3 Men			Middle Man	Middle Man
	4 or More				2nd Oldest Man

5

1982 SANTA CRUZ HOUSEHOLD TELEPHONE SURVEY (DURING)

Surveyor _____

Respondent Address _____

Respondent Telephone # _____ - _____ (1-7)

Hello, my name is _____ and I'm calling for Santa Cruz County. We're doing a study on parking availability in your area. Would you take a minute to answer a few questions?

Is this _____? (If no, thank person and end interview.)
(read address)

Because of the research method we are using, first I must determine whom in your household I should interview.

How many people 16 years of age or older live in your household? _____ (8-9)

How many of them are males? _____ (10-11)

Determine appropriate respondent from selection key below.

May I speak to _____?

If now speaking to different person, reintroduce yourself and purpose of survey.

If this person is not available, set up an interview time and note below and on call record sheet.

Name _____ Time _____

NUMBER OF MEN IN HOUSING UNIT	NUMBER OF ADULTS IN HOUSING UNIT			
	1 Adult	2 Adults	3 Adults	4 or more
	0 Men Adult	Youngest Woman	Oldest Woman	Oldest Woman
	1 Man Adult	Woman	Man	Youngest Woman
	2 Men	Youngest Man	Oldest Man	Oldest Man
	3 Men		Oldest Man	Youngest Man
4 or More				Youngest Man

6

1. How many days per month do you go to the beaches in the Live Oak (Sea Bright) area? _____

156/156
99/99
52/52

2. How do you ususally get there?

- | | |
|----------------------|------------------|
| 1() Auto, driver | 5() Taxi |
| 2() Auto, passenger | 6() Bicycle |
| 3() Motorcycle | 7() Walk |
| 4() Bus | 8() Other _____ |

120/123
82/82
40/40

3. How many vehicles are operated in Santa Cruz by members of your household?

_____ (IF NONE, SKIP TO 8a)

156/156
98/99
52/52

4. How many off-street parking spaces, such as in your driveway, are available to you here?

- | | | |
|-----------|------------|-------------------|
| 1() Zero | 3() Two | 5() Four |
| 2() One | 4() Three | 6() Five or more |

148/148
96/96
47/48

5a. Would you say than on weekends during the summer, finding a parking place on the street near your home is:

- | | <u>Weekend</u> | <u>Weekday</u> |
|-----------------------------|----------------|----------------|
| 1 Very difficult | () | () |
| 2 Fairly difficult | () | () |
| 3 Fairly easy, or | () | () |
| 4 Very easy? | () | () |
| 5 (Don't know) | () | () |
| 6 No street parking allowed | () | () |

148/148
96/96
48/48

5b. How about weekdays during the summer?

148/148
96/96
48/48

6. How frequently do you park on the street? (READ CHOICES)

- 1() All or most of the time
2() Sometimes
3() Occasionally, or
4() Never? (SKIP TO Q.8a)

148/148
96/96
48/48

7a. During the summer, how long does it usually take you, or members of your household, to find a parking place on the street near your home on weekends?

	<u>Weekends</u>	<u>Weekdays</u>
Find a space immediately	1()	1()
1-5 minutes	2()	2()
6-10 minutes	3()	3()
11-15 minutes	4()	4()
16-20 minutes	5()	5()
21-30 minutes	6()	6()
Over 30 minutes	7()	7()
(Don't know)	8()	8()

88/89
51/52
35/35

7b. How about on weekdays during the summer?

89/89
52/52
35/35

8a. Would you say that on weekends during the summer the traffic flow on the streets within two blocks of your house is... (READ CHOICES)

	<u>Weekends</u>	<u>Weekdays</u>
1 Very light	()	()
2 Fairly light	()	()
3 Fairly heavy, or	()	()
4 Very heavy?	()	()
5 (Don't know)	()	()

156/156
99/99
52/52

8b. How about on weekdays during the summer?

156/156
99/99
52/52

9a. On weekends, at what time of day is traffic the heaviest within two blocks of your house?

	<u>Weekends</u>	<u>Weekdays</u>
1 Early to mid-morning, Before 10AM	()	()
2 Late morning to midday, 10AM-12PM	()	()
3 Early afternoon to mid-afternoon, 12:01PM-4PM	()	()
4 Late afternoon to early evening, 4:01PM-7PM	()	()
5 Evening to late evening, After 7PM	()	()
6 No difference among times of day	()	()
7 (Don't know)	()	()
8 Peak periods	()	()

155/156
98/99
52/52

9b. How about on weekdays?

156/156
99/99
52/52

10. Do you know about the summer parking permit program in the Live Oak Area of Santa Cruz County?

- 1() Yes (SKIP TO Q. 11)
2() No Read explanation
3() Unsure below)

The County of Santa Cruz is testing a parking permit program designed to reduce traffic and parking congestion in the Live Oak Beach Areas during the summer months. Residents of the area are able to obtain parking permits for themselves and their guests which allow them to park on the street. Nonresidents are required to pay a \$3 daily fee to park on the street near beach areas. Does this sound at all familiar to you?

IF YES, GO TO Q. 11

IF STILL NO, Have you used any permits?

- 1() Yes, GO TO Q. 11
2() No, GO TO Q. 18a

11. Do you have a resident permit?

- 1() No
2() Yes

12. Did you have a resident permit last summer?

- 1() Yes (IF NO TO Q. 11- GO TO Q. 18a)
2() No (GO TO Q. 18a)

13. How many other living at the same address have resident permits? _____

14. Do you yourself have any guest permits?

- 1() No (GO TO Q. 18a) _____
2() Yes, how many _____

15. How often have you used them?

- 1() 4 or more times/week
2() 1-4 times/week
3() Less than 4 times a month
4() Haven't used them

ASK #16 ONLY TO PEOPLE WHO LIVE IN PERMIT ZONE

16. Have you made any special arrangements for guest parking as a result of the permit program?

- 1() No
2() Yes- Please explain _____

ASK #17 ONLY TO PEOPLE WHO LIVE OUTSIDE THE PERMIT ZONE

17. Have you purchased a season or day-use permit this year?

- 1() Yes- Which? 1() Season
2() Day-use-- How many? _____
3() Both
4() Don't know
5() No

156/156
99/99
N/A

1/1
2/2
N/A

154/155
98/99
N/A

155/155
98/99
N/A

N/A
67/71
N/A

N/A
67/71
N/A

N/A
8/9
N/A

N/A
9/9
N/A

N/A
63/99
N/A

154/155
N/A
N/A

18a. Compared with last summer would you say that parking on weekends this summer on the street near your home is:

	Weekends	Weekdays
1() Much more difficult	()	()
2() More difficult	()	()
3() About the same	()	()
4() Easier, or	()	()
5() Much easier	()	()
6() (DON'T READ)	()	()
7() (DON'T READ)	()	()
8() (Not here last summer)	()	()

156/156
94/99
N/A

18b. How about on weekdays?

19a. Compared with last summer would you say that on weekends this summer, traffic flow on the street within 2 blocks of you house is:

	Weekends	Weekdays
1 Much lighter	()	()
2 Lighter	()	()
3 About the same	()	()
4 Heavier, or	()	()
5 Much heavier	()	()
6 (DON'T READ) Don't know	()	()
7 (Not here last summer)	()	()

156/156
94/99
N/A

156/156
96/99
N/A

156/156
96/99
N/A

19b. What about on weekdays?

20. Overall would you say that this years parking permit program is:

1() A very good idea
2() A good idea
3() A bad idea
4() A very bad idea, or
5() Neither a good nor bad idea

156/156
98/99
N/A

21. If it were up to you, for next summer would you...

1() Keep the program as it is?
2() Eliminate it altogether? Why? _____

125/156
91/99
N/A

3() Change it? How would you change it? _____

18/18
6/7
N/A

42/43
31/31
N/A

Now I would like to ask a few final questions for statistical purposes.

22. Are you...

- 1() A permanent resident (SKIP TO Q. 21)
- 2() A summer resident, or
- 3() A visitor to Santa Cruz County

156/156
98/99
52/52

23. Where is your permanent residence:

City or County _____

State _____

4/4
12/14
6/9

24. Do you own or rent your residence here?

- 1() Own
- 2() Rent
- 3() (Don't know)

155/156
98/99
52/52

25. Which of the following categories best applies to you?

- 1() Employed
- 2() Student
- 3() Homemaker
- 4() Retired
- 5() Not currently employed
- 6() Other _____

151/156
98/99
52/52

26. Which of the following categories includes your age?

- 1() Under 16
- 2() 16-24
- 3() 25-34
- 4() 35-44
- 5() 45-64
- 6() 65 or older
- 7() (Refused)

156/156
98/99
52/52

27. Would you say your yearly family income--before taxes and including everyone in your household--is...

- 1() Less than \$5,000/year
- 2() Between \$5,000 and \$15,000
- 3() Between \$15,000 and \$35,000
- 4() Over \$35,000
- 5() (Don't know)
- 6() (Refused)

154/156
97/99
52/52

28a. Have we ever talked with you before about the permit program?

- 1() Yes
- 2() No

(IF YES)

156/156
96/99
52/52

28b. Where did we talk with you?

- 1() Residence
- 2() Beach
- 3() Shuttlebus
- 4() Other

22/22
17/17
0/0

28c. When did we talk with you? _____

15/22
12/17
0/0

29. Finally, do you have any additional comments about the parking and traffic situation in your neighborhood?

128/156
52/99
18/52

Thank you very much for your help on this survey. The County of Santa Cruz really appreciates your assistance and time.

30. Sex (from respondent key)

- 1() Male
- 2() Female

155/156
94/99
50/52

LIVE OAK SHUTTLE BUS SURVEY

PLEASE HELP SANTA CRUZ PLAN SHUTTLEBUS SERVICE FOR YOU. If you have filled out this questionnaire before, please do not do it again.

1. WHERE DID YOU GET ON THIS BUS AND WHERE WILL YOU GET OFF?

	GOT ON AT (Check One)	WILL GET OFF AT (Check One)
BEACH	1 <input type="checkbox"/>	1 <input type="checkbox"/>
17th AVENUE PARKING LOT	2 <input type="checkbox"/>	2 <input type="checkbox"/>
41st AVENUE PARKING LOT	3 <input type="checkbox"/>	3 <input type="checkbox"/>
HOME/MOTEL/RENTAL HOUSE	4 <input type="checkbox"/>	4 <input type="checkbox"/>
SHOPPING	5 <input type="checkbox"/>	5 <input type="checkbox"/>
OTHER	6 <input type="checkbox"/>	6 <input type="checkbox"/>

282/284

257/284

2. ABOUT HOW MANY HOURS DID YOU OR DO YOU PLAN TO STAY AT THE BEACH TODAY?

1 <input type="checkbox"/> NONE	5 <input type="checkbox"/> 5 - 6 HOURS
2 <input type="checkbox"/> LESS THAN 1 HOUR	6 <input type="checkbox"/> 7 - 8 HOURS
3 <input type="checkbox"/> 1 - 2 HOURS	7 <input type="checkbox"/> MORE THAN 8 HOURS
4 <input type="checkbox"/> 3 - 4 HOURS	

283/284

3. HOW FAR DID YOU TRAVEL TODAY TO GET TO THIS SANTA CRUZ BEACH AREA?

1 <input type="checkbox"/> 0 - 1 MILE	4 <input type="checkbox"/> 11 - 20 MILES
2 <input type="checkbox"/> 2 - 5 MILES	5 <input type="checkbox"/> 21 - 50 MILES
3 <input type="checkbox"/> 6 - 10 MILES	6 <input type="checkbox"/> OVER 50 MILES

281/284

4. HOW MANY PEOPLE ARE IN YOUR GROUP, INCLUDING YOURSELF? _____

280/284

5. WHY DID YOU CHOOSE TO PARK IN THE LOT AND USE THE SHUTTLEBUS TODAY?
(CHECK ALL THAT APPLY)

1 <input type="checkbox"/> TO AVOID THE COST OF A DAY USE PERMIT
1 <input type="checkbox"/> TO AVOID THE DIFFICULTY OF PARKING NEAR THE BEACH
1 <input type="checkbox"/> NO PARTICULAR REASON
1 <input type="checkbox"/> DID NOT PARK IN THE LOT
1 <input type="checkbox"/> OTHER (PLEASE SPECIFY) _____

275/284

6. HOW DID YOU FIND OUT ABOUT THE SHUTTLEBUS SERVICE? (CHECK ALL THAT APPLY)

1 <input type="checkbox"/> FROM A FRIEND	1 <input type="checkbox"/> SAW BUS
1 <input type="checkbox"/> THROUGH THE NEWS MEDIA	1 <input type="checkbox"/> FROM SIGNS IN THE AREA
1 <input type="checkbox"/> OTHER (PLEASE SPECIFY) _____	

279/284

7. WAS IT EASY TO FIND THE PARKING LOT?

1 <input type="checkbox"/> YES	2 <input type="checkbox"/> NO	3 <input type="checkbox"/> DID NOT PARK IN LOT
--------------------------------	-------------------------------	--

270/284

PLEASE TURN OVER

8. DID YOU DROP ANYONE OFF AT THE BEACH BEFORE PARKING IN THE LOT? 270/284
1 ☐ YES 2 ☐ NO 3 ☐ DID NOT PARK IN LOT
9. NEXT TIME YOU COME TO THIS BEACH AREA, DO YOU THINK YOU'LL 260/284
1 ☐ USE THE SHUTTLEBUS AGAIN?
2 ☐ BUY A DAY-USE PERMIT?
3 ☐ COME BY SOME MEANS OTHER THAN CAR?
4 ☐ PROBABLY WON'T COME BACK.
5 ☐ DID NOT PARK IN THE LOT
10. BEFORE TODAY, ON ABOUT HOW MANY DAYS HAVE YOU RIDDEN THE SHUTTLEBUS? 266/284
1 ☐ NONE 4 ☐ 6 - 10
2 ☐ 1 - 2 5 ☐ MORE THAN 10
3 ☐ 3 - 5
11. HAVE YOU EVER PURCHASED A DAY-USE PERMIT TO COME TO THIS AREA? 263/284
1 ☐ YES 2 ☐ NO
12. DURING THIS SUMMER, ABOUT HOW MANY DAYS EACH MONTH DO YOU USUALLY 230/284
COME TO THIS PARTICULAR BEACH AREA? _____
13. ARE YOU ... 1 ☐ MALE? 2 ☐ FEMALE? 259/284
14. WHICH ONE OF THE FOLLOWING CATEGORIES BEST APPLIES TO YOU? 256/284
1 ☐ EMPLOYED 4 ☐ RETIRED
2 ☐ STUDENT 5 ☐ NOT CURRENTLY EMPLOYED
3 ☐ HOMEMAKER 6 ☐ OTHER _____
15. WHICH OF THE FOLLOWING CATEGORIES INCLUDES YOU AGE? 257/284
1 ☐ UNDER 16 4 ☐ 35 - 44
2 ☐ 16 - 24 5 ☐ 45 - 64
3 ☐ 25 - 34 6 ☐ 65 OR OVER
16. WOULD YOU SAY YOUR YEARLY HOUSEHOLD INCOME, BEFORE TAXES AND 231/284
INCLUDING EVERYONE IN YOUR HOUSEHOLD, WAS ...
1 ☐ LESS THAN \$5,000 A YEAR
2 ☐ BETWEEN \$5,000 AND \$15,000
3 ☐ BETWEEN \$15,001 and \$35,000
4 ☐ OVER \$35,000
5 ☐ DON'T KNOW
17. OTHER COMMENTS _____ 66/284

PLEASE RETURN THIS FORM TO THE SURVEY TAKER. THANK YOU FOR YOUR COOPERATION. THIS INFORMATION IS CONFIDENTIAL AND FOR STATISTICAL PURPOSES ONLY.

Hello; my name is _____, and I'm an interviewer for the County of Santa Cruz. We're conducting a survey of beach users in this area. May I ask you a few questions? First, has anyone else from the County interviewed you within the last week? (If yes, thank respondent and terminate the interview.)

Interviewer Initials: _____
Date: 915/915
Location: 915/915
Time: 915/915
Arriving-1, Departing=2 909/915
Interview=1. None=2 909/915
Male=1, Female=2 888/913

1. What do you plan to (did you) do at the beach today? (Indicate up to 3 responses in order given, 1, 2, 3, and transfer to right column in the same order.)

1 () Swimming	3 () Surfing	5 () Jogging	7 () Sailing
2 () Sunning	4 () Hanging out	6 () Volleyball	8 () _____
2. What time do you plan to leave (did you arrive at) the beach today?

1 () Before 7AM	5 () 10:01-11AM	9 () 2:01-3PM	13 () 6:01-7PM
2 () 7:01-8AM	6 () 11:01-12AM	10 () 3:01-4PM	14 () After 7PM
3 () 8:01-9AM	7 () 12:01-1PM	11 () 4:01-5PM	15 () Don't know
4 () 9:01-10AM	8 () 1:01-2PM	12 () 5:01-6PM	
3. How far did you travel to get here today?

1 () Less than 1 mile	4 () 6-10 miles	7 () Over 50 miles
2 () 1-2 miles	5 () 11-20 miles	8 () Don't know
3 () 3-5 miles	6 () 21-50 miles	
4. a. Where is your permanent residence? (City) _____ (State) _____
 b. (If remote) Where are you currently staying? _____
 c. (If somewhat remote) Are you staying there now? (If NO, ask (b) above.)
 d. (If answer to (a) or (b) appears to be in target area show map and ask Do you live (are you staying) within the area outlined on this map?
 1 () Yes 2 () No
5. a. Would you say that finding a place to park near this beach on weekdays is ... (Read each)

	Weekdays	Weekends
A major problem	1 ()	1 ()
A minor problem, or	2 ()	2 ()
Not a problem.	3 ()	3 ()
(Don't know)	4 ()	4 ()
- b. How about on weekends?
6. How many people are in your group, including yourself? _____
7. How did you get to the beach today?

1 () Drove auto myself	5 () Bus	} (Skip to Q.12)
() Passenger in auto	6 () Taxi	
↳ Were you dropped off at beach?	7 () Bicycle	
2 () Yes 3 () No	8 () Walked	
4 () Motorcycle	9 () Other	

—Ask of Auto/Motorcycle Users Only—

8. If you couldn't have (driven/gotten a lift/ridden your motorcycle), how would you have come to the beach today?

1 () Would not have come	4 () Motorcycle	7 () Bicycle
2 () Driven myself	5 () Bus	8 () Walk
3 () Passenger in auto	6 () Taxi	9 () Other _____
9. How many vehicles did your group use to get to the beach today? _____
10. How long did it take you to find a place to park?

1 () Found a space immediately	4 () 11-15 minutes	7 () Don't know
2 () 1-5 minutes	5 () 16-30 minutes	
3 () 6-10 minutes	6 () Over 30 minutes	
11. How many blocks away did you park?

1 () Less than 1 block	3 () 3-5 blocks	5 () Over 1 mile
2 () 1-2 blocks	4 () 6 blocks to 1 mile	6 () Don't know

12. During the summer, about how many days each month do you usually come to this particular beach? _____ 826/915
13. During the summer, about how many days each month do you go to other beaches in Santa Cruz? _____ 824/915
14. Do you usually go to the beach on weekdays, weekends, or both? 866/915
1 () Weekdays 2 () Weekends 3 () Both 4 () Rarely go to beach
15. Why did you choose to come to this beach instead of other beaches? 894/915

— Ask of Nonresidents Only —

16. Suppose you had to pay \$5 a day to park here near the beach. If there were free parking about a mile away and a free shuttle bus to the beach which ran every _____ minutes, which of the following options do you think you would take. (*Read each.*) 303/476
- 1 () Pay \$5 to park near the beach,
2 () Take the free shuttle bus to the beach,
3 () Get here some other way,
4 () Go to some other beach, or
5 () Not go to the beach at all
6 () (Other) _____
7 () (Don't know)
17. (a) While you are (your group is) in Santa Cruz on this trip, do you plan to buy any meals, buy gas, rent beach equipment, stay in a motel, or in any other way purchase services here? 293/476
- 1 () Yes
2 () No
3 () Maybe
4 () Don't know
- (b) (*If answer 'yes' or 'maybe' to above*) Could you tell me, roughly, how much you (your group) might spend on these services? (*Read each.*) 195/195
- | | | |
|------------------|-------------------|--------------------|
| 1 () up to \$5 | 5 () \$51 to 75 | 8 () (Don't know) |
| 2 () \$5 to 15 | 6 () \$76 to 100 | 9 () (Refused) |
| 3 () \$16 to 30 | 7 () Over \$100 | |
| 4 () \$31 to 50 | | |

18. When you want to go to the beach, is a vehicle available to you... 862/915
1 () Always 2 () Usually 3 () Sometimes 4 () Rarely or never
19. Do you have a driver's license? 906/915
1 () Yes 2 () No
20. Which of the following categories best applies to you? (*Read each.*) 909/915
- | | | |
|----------------|-----------------|------------------------------|
| 1 () Employed | 3 () Homemaker | 5 () Not currently employed |
| 2 () Student | 4 () Retired | 6 () Other _____ |
21. Which of the following categories includes your age? (*Read each.*) 910/915
- | | | | |
|----------------|-------------|------------------|-----------------|
| 1 () Under 16 | 3 () 25-34 | 5 () 45-64 | 7 () (Refused) |
| 2 () 16-24 | 4 () 35-44 | 6 () 65 or over | |
22. Would you say your yearly household income, before taxes and including everyone in your household, was ... 910/915
- | | |
|---|-----------------------|
| 1 () Less than \$5,000 a year? | 5 () (Don't know) |
| 2 () Between \$5,000 and \$15,000 a year? | 6 () (Refuse to say) |
| 3 () Between \$15,001 and \$35,000 a year? | |
| 4 () Over \$35,000 a year? | |

Thank you for your help on this survey. Your answers will be very useful to the county.

HELLO; MY NAME IS _____, AND I'M AN INTERVIEWER
FOR THE COUNTY OF SANTA CRUZ. WE'RE CONDUCTING A
SURVEY OF BEACH USERS IN THIS AREA. MAY I ASK YOU
A FEW QUESTIONS? FIRST, HAS ANYONE ELSE FROM THE
COUNTY INTERVIEWED YOU WITHIN THE LAST WEEK? (If
yes, thank respondent and terminate the interview.)

INTERVIEWER INITIALS: _____
DATE: 924/924
LOCATION: " "
TIME: " "
ARRIVING=1, DEPARTING=2 922/924
INTERVIEW=1, NONE=2 924/924
MALE=1, FEMALE=2 921/924

1. WHAT DO YOU PLAN TO (DID YOU) DO AT THE BEACH TODAY? (Indicate up to 3 responses
in order given, 1, 2, 3, and transfer to right column in the same order.)
1 () SWIMMING 3 () SURFING 5 () JOGGING 7 () SAILING 924/924
2 () SUNNING 4 () HANGING OUT 6 () VOLLEYBALL 8 () _____ 423/924
116/924
2. WHAT TIME DO YOU PLAN TO LEAVE (DID YOU ARRIVE AT) THE BEACH TODAY?
1 () BEFORE 7AM 5 () 10:01-11AM 9 () 2:01-3PM 13 () 6:01-7PM 923/924
2 () 7:01-8AM 6 () 11:01-12AM 10 () 3:01-4PM 14 () AFTER 7PM
3 () 8:01-9AM 7 () 12:01-1PM 11 () 4:01-5PM 15 () DON'T KNOW
4 () 9:01-10AM 8 () 1:01-2PM 12 () 5:01-6PM 919/924
3. HOW FAR DID YOU TRAVEL TO GET HERE TODAY?
1 () LESS THAN 1 MILE 3 () 3-5 MILES 5 () 11-20 MILES 7 () OVER 50 MILES
2 () 1-2 MILES 4 () 6-10 MILES 6 () 21-50 MILES 8 () DON'T KNOW
4. a. WHERE IS YOUR PERMANENT RESIDENCE? (City) _____ (State) _____ 924/924
b. (If remote) WHERE ARE YOU CURRENTLY STAYING? 201/NA
c. (If somewhat remote) ARE YOU STAYING THERE NOW? (If no, ask (b) above.) 909/924
d. (If answer to (a) or (b) appears to be in target area, show map and ask)
DO YOU LIVE (ARE YOU STAYING) WITHIN THE AREA OUTLINED ON THIS MAP?
1 () YES 2 () NO
5. a. WOULD YOU SAY THAT FINDING A PLACE TO PARK NEAR THIS BEACH ON WEEKDAYS
IS . . . (Read each) WEEKDAYS WEEKENDS 924/924
A MAJOR PROBLEM 1 () 1 ()
A MINOR PROBLEM, OR 2 () 2 ()
NOT A PROBLEM. 3 () 3 ()
(DON'T KNOW) 4 () 4 ()
b. HOW ABOUT ON WEEKENDS?
6. HOW MANY PEOPLE ARE IN YOUR GROUP, INCLUDING YOURSELF? 919/924
7. HOW DID YOU GET TO THE BEACH TODAY?
1 () DROVE AUTO MYSELF } 5 () MOTORCYCLE }
() PASSENGER IN AUTO } (Go to 6 () CITY BUS } (Go to
WERE YOU DROPPED } Q. 9) 7 () BICYCLE } Q. 15)
OFF AT BEACH? }
2 () YES 3 () NO } 8 () WALKED }
4 () SHUTTLEBUS } 9 () OTHER }

ASK OF SHUTTLEBUS USERS ONLY

- 8a. HOW DID YOU FIRST HEAR ABOUT THE SHUTTLE BUS? 23/23
- 8b. (FROM WHERE YOU PARKED YOUR CAR), HOW LONG DID IT TAKE YOU TO GET TO THE
BEACH? (in minutes) 23/23
- 8c. DID YOU HAVE ANY PROBLEMS? 23/23; 1/1
1 () NO 2 () YES, EXPLAIN _____
- 8d. WOULD YOU USE THE SHUTTLEBUS AGAIN? 23/23
1 () NO, EXPLAIN _____ 2 () YES
- 8e. HAVE YOU EVER PURCHASED A DAY-USE PERMIT TO COME TO THIS AREA? 23/23
1 () NO (Go to Q. 15) 2 () YES (Go to Q. 13c)

ASK OF AUTO USERS ONLY

9. HOW MANY VEHICLES DID YOUR GROUP USE TO GET TO THE BEACH TODAY? 608/608
10. (Show map) DID YOU PARK WITHIN THE AREA OUTLINED IN RED ON THIS MAP? 608/608
1 () YES 2 () NO 3 () DON'T KNOW 608/608
11. HOW LONG DID IT TAKE YOU TO FIND A PLACE TO PARK?
1 () FOUND A PLACE IMMEDIATELY 4 () 11-15 MINUTES 7 () DON'T KNOW
2 () 1-5 MINUTES 5 () 16-30 MINUTES
3 () 6-10 MINUTES 6 () OVER 30 MINUTES 608/608
12. HOW MANY BLOCKS AWAY DID YOU PARK?
1 () LESS THAN 1 BLOCK 3 () 3-5 BLOCKS 5 () OVER 1 MILE
2 () 1-2 BLOCKS 4 () 6 BLOCKS TO 1 MILE 6 () DON'T KNOW
- 13a. DID YOU OR THE DRIVER BUY A DAY-USE PERMIT? 608/608
1 () NO 2 () YES (Go to Q. 13c) 3 () RESIDENT OR OTHER PERMIT

- 13b. HAVE YOU EVER BOUGHT ONE? 1 () NO (Go to Q. 14a) 2 () YES
- 13c. WHERE DID YOU BUY THE PERMIT? 4 () VANS LOCATED AT TWIN LAKES BEACH
 1 () 17th AVE. PARKING LOT 5 () MERCHANTS
 2 () 41st AVE. PARKING LOT 6 () CAN'T REMEMBER
 3 () 17th AVE. PROJECT OFFICE 7 () OTHER _____
- 13d. DID YOU HAVE ANY PROBLEMS? 1 () NO 2 () YES, EXPLAIN _____
- 13e. HOW MANY TIMES HAVE YOU BOUGHT A DAY-USE PERMIT BEFORE? _____
- 13f. WOULD YOU BUY ONE AGAIN? 1 () YES 2 () NO, EXPLAIN _____
- 14a. (If shuttlebus user, go to Q. 15) DO YOU KNOW ABOUT THE FREE SHUTTLEBUS FROM SPECIAL NEARBY PARKING LOTS TO THE BEACH? 1 () NO 2 () YES (Go to Q. 14c)
- 14b. YOU CAN PARK YOUR CAR FREE EITHER ON 17th AVE. OR ON 41st AVE. AND TAKE A FREE BUS TO ANY BEACH POINT IN THIS AREA. THE BUS RUNS EVERY 15 MINUTES FROM 10 AM TO 6 PM. WOULD YOU BE LIKELY TO USE THIS SHUTTLE BUS NEXT TIME YOU COME TO THIS BEACH? (Go to Q. 14h) 1 () YES 2 () NO, EXPLAIN _____
- 14c. HAVE YOU EVER USED IT? 1 () NO (Go to Q. 14h) 2 () YES
- 14d. HOW MANY TIMES? _____
- 14e. HAVE YOU HAD ANY PROBLEMS USING IT? 1 () NO 2 () YES, EXPLAIN _____
- 14f. WHY DIDN'T YOU USE IT TODAY? _____
- 14g. WOULD YOU USE IT AGAIN? 1 () NO, EXPLAIN _____ 2 () YES
- 14h. (If not an auto passenger dropped off at beach, go to Q. 15) DID THE DRIVER OF YOUR CAR USE THE SHUTTLE BUS TO GET TO THE BEACH TODAY? 1 () NO 3 () DRIVER DIDN'T COME
 2 () YES 4 () DON'T KNOW

15. DURING THIS SUMMER, ABOUT HOW MANY DAYS EACH MONTH DO YOU USUALLY COME TO THIS PARTICULAR BEACH? _____
16. DURING THIS SUMMER, ABOUT HOW MANY DAYS EACH MONTH DO YOU GO TO OTHER BEACHES IN SANTA CRUZ? _____
17. DO YOU USUALLY GO TO THE BEACH ON WEEKDAYS, WEEKENDS, OR BOTH? 1 () WEEKDAYS 2 () WEEKENDS 3 () BOTH 4 () RARELY GO TO BEACH
18. WHY DID YOU CHOOSE TO COME TO THIS BEACH INSTEAD OF OTHER BEACHES? _____

ASK OF NONRESIDENTS ONLY

- 19a. WHILE YOU ARE (YOUR GROUP IS) IN SANTA CRUZ ON THIS TRIP, DO YOU PLAN TO BUY ANY MEALS, BUY GAS, RENT BEACH EQUIPMENT, STAY IN A MOTEL, OR IN ANY WAY PURCHASE SERVICES HERE? 1 () YES 2 () NO 3 () MAYBE 4 () DON'T KNOW
- 19b. (If answer 'yes' or 'maybe' to above) COULD YOU TELL ME, ROUGHLY, HOW MUCH YOU (YOUR GROUP) MIGHT SPEND ON THESE SERVICES? 7 () OVER \$100
 1 () UP TO \$5 3 () \$16 TO 30 5 () \$51 TO 75 8 () (DON'T KNOW)
 2 () \$5 TO 15 4 () \$31 TO 50 6 () \$76 TO 100 9 () (REFUSED)
20. DO YOU HAVE A DRIVER'S LICENSE? 1 () YES 2 () NO (Go to Q. 22)
21. THIS SUMMER, HAVE YOU RECEIVED ANY PARKING TICKETS IN THIS AREA FOR PARKING WITHOUT A VALID PERMIT? 1 () NO 2 () YES, HOW MANY _____
22. WHICH OF THE FOLLOWING CATEGORIES BEST APPLIES TO YOU? (Read each)
 1 () EMPLOYED 3 () HOMEMAKER 5 () NOT CURRENTLY EMPLOYED
 2 () STUDENT 4 () RETIRED 6 () OTHER _____
23. WHICH OF THE FOLLOWING CATEGORIES INCLUDES YOUR AGE? (Read each)
 1 () UNDER 16 3 () 25-34 5 () 45-64 7 () (REFUSED)
 2 () 16-24 4 () 35-44 6 () 65 OR OVER
24. WOULD YOU SAY YOUR YEARLY HOUSEHOLD INCOME, BEFORE TAXES AND INCLUDING EVERYONE IN YOUR HOUSEHOLD, WAS . . .
 1 () LESS THAN \$5,000 A YEAR? 4 () OVER \$35,000 A YEAR
 2 () BETWEEN \$5,000 AND \$15,000 A YEAR? 5 () (DON'T KNOW)
 3 () BETWEEN \$15,001 and \$35,000 A YEAR 6 () (REFUSE TO SAY)

THANK YOU FOR YOUR HELP ON THIS SURVEY. YOUR ANSWERS WILL BE VERY USEFUL TO THE COUNTY.

519/525

105/111

105/111; 24/24

104/111

101/111; 41/42

603/608

173/175; 81/82

422/428

50/50

48/50; 8/8

49/50

48/50; 5/5

30/30

911/924

906/924

913/924

890/924

511/526

399/399

921/924

852/852

921/924

922/924

921/924

HELLO: MY NAME IS _____, AND I'M AN INTERVIEWER
FOR THE COUNTY OF SANTA CRUZ. WE'RE CONDUCTING A
SURVEY OF BEACH USERS IN THIS AREA. MAY I ASK YOU
A FEW QUESTIONS? FIRST, HAS ANYONE ELSE FROM THE
COUNTY INTERVIEWED YOU WITHIN THE LAST WEEK? *(If*
yes, thank respondent and terminate the interview.)

INTERVIEWER INITIALS: _____

DATE: 1023/1023

LOCATION: 1023/1023

TIME: 1023/1023

ARRIVING=1, DEPARTING=2 846/849

INTERVIEW=1, NONE=2 1023/1023

MALE=1, FEMALE=2 847/849

1. WHAT TIME DO YOU PLAN TO LEAVE (DID YOU ARRIVE AT) THE BEACH TODAY? 848/849

- 1() BEFORE 7AM 5() 10:01-11AM 9() 2:01-3PM 13() 6:01-7PM
2() 7:01-8AM 6() 11:01-12AM 10() 3:01-4PM 14() AFTER 7PM
3() 8:01-9AM 7() 12:01-1PM 11() 4:01-5PM 15() DON'T KNOW
4() 9:01-10AM 8() 1:01-2PM 12() 5:01-6PM

2. HOW FAR DID YOU TRAVEL TO GET HERE TODAY? 848/849

- 1() LESS THAN 1 MILE 3() 3-5 MILES 5() 11-20 MILES 7() OVER 50 MILES
2() 1-2 MILES 4() 6-10 MILES 6() 21-50 MILES 8() DON'T KNOW

3. a. WHERE IS YOUR PERMANENT RESIDENCE? *(City)* _____ *(State)* _____ 844/849b. *(If remote)* WHERE ARE YOU CURRENTLY STAYING? _____c. *(If somewhat remote)* ARE YOU STAYING THERE NOW? *(If no, ask (b) above)*d. *(If answer to (a) or (b) appears to be in target area, show map and ask)* 179/NA

DO YOU LIVE (ARE YOU STAYING) WITHIN THE AREA OUTLINED ON THIS MAP? 405/NA

1() YES 2() NO

4. a. WOULD YOU SAY THAT FINDING A PLACE TO PARK NEAR THIS BEACH ON WEEKDAYS 833/849

IS... *(Read each)*

A MAJOR PROBLEM

A MINOR PROBLEM, OR

NOT A PROBLEM.

(DON'T KNOW)

WEEKDAYS

WEEKENDS

1()

1()

2()

2()

3()

3()

4()

4()

b. HOW ABOUT ON WEEKENDS? 836/849

5. HOW MANY PEOPLE ARE IN YOUR GROUP, INCLUDING YOURSELF? _____ 849/849

6. HOW DID YOU GET TO THE BEACH TODAY? 848/849

- 1() DROVE AUTO MYSELF 4() MOTORCYCLE
() PASSENGER IN AUTO 5() CITY BUS
WERE YOU DROPPED 6() BICYCLE
OFF AT BEACH? 7() WALKED
2() YES 3() NO 8() OTHER

(Go to
Q. 18)

ASK OF AUTO USERS ONLY

7. HOW MANY VEHICLES DID YOUR GROUP USE TO GET TO THE BEACH TODAY? _____ 596/596

8. *(Show map)* DID YOU PARK WITHIN THE AREA OUTLINED ON THIS MAP? 528/596

- 1() YES 2() NO 3() DON'T KNOW

9. HOW LONG DID IT TAKE YOU TO FIND A PLACE TO PARK? 594/596

- 1() FOUND A PLACE IMMEDIATELY 4() 11-15 MINUTES 7() DON'T KNOW
2() 1-5 MINUTES 5() 16-30 MINUTES
3() 6-10 MINUTES 6() OVER 30 MINUTES

10. HOW MANY BLOCKS AWAY DID YOU PARK? 595/596

- 1() LESS THAN 1 BLOCK 3() 3-5 BLOCKS 5() OVER 1 MILE
2() 1-2 BLOCKS 4() 6 BLOCKS TO 1 MILE 6() DON'T KNOW

11. DO YOU HAVE A RESIDENT OR SEASON PERMIT? 594/596

1() RESIDENT

2() SEASON

3() NEITHER

(Go to Q. 18).

12. DO YOU THINK \$3.00 A DAY IS A FAIR PRICE TO PAY TO PARK NEAR THIS BEACH? 556/557

- 1() NO
2() YES

13. WOULD YOU PAY \$5.00 A DAY TO PARK NEAR THIS BEACH? 557/557

- 1() NO
2() YES

14. ARE YOU AWARE THAT A SEASON PERMIT IS AVAILABLE? 557/557

1() NO

2() YES- WHY HAVEN'T YOU PURCHASED ONE? _____

ASK QUESTIONS 15-17 ON SATURDAY AND SUNDAY ONLY

15. DID YOU OR THE DRIVER BUY A DAY USE PERMIT?
1 () NO- HAVE YOU EVER BOUGHT ONE? _____ (Go to Q. 18) 279/279
2 () YES
16. WHERE DID YOU BUY THE PERMIT?
1 () CHEESE FACTORY (17th & E. Cliff) 4 () 8th & E. Cliff 29/29
2 () TWIN LAKES 5 () 6th & E. Cliff
3 () MORAN LAKE 6 () OTHER _____
17. HOW MANY OTHER TIMES HAVE YOU BOUGHT ONE THIS YEAR? _____ 28/29
18. DURING THIS SUMMER, ABOUT HOW MANY DAYS EACH MONTH DO YOU USUALLY COME TO THIS PARTICULAR BEACH? _____ 795/849
19. DURING THIS SUMMER, ABOUT HOW MANY DAYS EACH MONTH DO YOU GO TO OTHER BEACHES IN SANTA CRUZ? _____ 782/849
20. DO YOU USUALLY GO TO THE BEACH ON WEEKDAYS, WEEKENDS, OR BOTH?
1 () WEEKDAYS 2 () WEEKENDS 3 () BOTH 4 () RARELY GO TO BEACH 835/849
21. WHY DID YOU CHOOSE TO COME TO THIS BEACH INSTEAD OF OTHER BEACHES? _____ 847/849

ASK OF NONRESIDENTS ONLY

- 22a. WHILE YOU ARE (YOUR GROUP IS) IN SANTA CRUZ ON THIS TRIP, DO YOU PLAN TO BUY ANY MEALS, BUY GAS, RENT BEACH EQUIPMENT, STAY IN A MOTEL, OR IN ANY WAY PURCHASE SERVICES HERE? 513/524
1 () YES 2 () NO 3 () MAYBE 4 () DON'T KNOW
- 22b. (If answer 'yes' or 'maybe' to above) COULD YOU TELL ME, ROUGHLY, HOW MUCH YOU (YOUR GROUP) MIGHT SPEND ON THESE SERVICES? 7 () OVER \$100 416/416
1 () UP TO \$5 3 () \$16 TO 30 5 () \$51 TO 75 8 () (DON'T KNOW)
2 () \$5 TO 15 4 () \$31 TO 50 6 () \$76 TO 100 9 () (REFUSED)
23. DO YOU HAVE A DRIVER'S LICENSE? 1 () YES 2 () NO (Go to Q. 25) 847/849
24. THIS SUMMER, HAVE YOU RECEIVED ANY PARKING TICKETS IN THE SANTA CRUZ BEACH AREA FOR PARKING WITHOUT A VALID PERMIT? 778/778
1 () NO- DO YOU KNOW HOW MUCH THE FINE IS? _____ 254/778
2 () YES- HOW MANY? _____
25. WHICH OF THE FOLLOWING CATEGORIES BEST APPLIES TO YOU? (Read each) 849/849
1 () EMPLOYED 3 () HOMEMAKER 5 () NOT CURRENTLY EMPLOYED
2 () STUDENT 4 () RETIRED 6 () OTHER _____
26. WHICH OF THE FOLLOWING CATEGORIES INCLUDES YOUR AGE? (Read each) 849/849
1 () UNDER 16 3 () 25-34 5 () 45-64 7 () (REFUSED)
2 () 16-24 4 () 35-44 6 () 65 OR OVER
27. WOULD YOU SAY YOUR YEARLY HOUSEHOLD INCOME, BEFORE TAXES AND INCLUDING EVERYONE IN YOUR HOUSEHOLD, WAS. . . 848/849
1 () LESS THAN \$5,000 A YEAR? 4 () OVER \$35,000 A YEAR
2 () BETWEEN \$5,000 and \$15,000 A YEAR? 5 () DON'T KNOW
3 () BETWEEN \$15,001 and \$35,000 A YEAR? 6 () (REFUSED TO SAY)

COMMENTS _____ 304/849

THANK YOU FOR YOUR HELP ON THIS SURVEY. YOUR ANSWERS WILL BE VERY USEFUL TO THE COUNTY.

1982 LIVE OAK DAY USE-PARKING PERMIT BUYER SURVEY

The County of Santa Cruz is conducting a survey of parking permit buyers in the Live Oak Area. Please take a few minutes to fill out this questionnaire.

1. What time did you arrive at the beach today? _____ 330/338
2. What time do you plan to leave? _____ 313/338
3. Where is your permanent residence? _____ 316/338
4. Where are you currently staying? (If different than above) _____ 39/NA
5. Would you say finding a place to park near this beach on weekdays and weekends is....

	Weekdays	Weekends
A major problem	1 <input type="radio"/>	1 <input type="radio"/>
A minor problem	2 <input type="radio"/>	2 <input type="radio"/>
Not a problem	3 <input type="radio"/>	3 <input type="radio"/>
Don't know	4 <input type="radio"/>	4 <input type="radio"/>

 265/338
324/338
6. How many people drove in your car, including yourself? _____ 324/338
7. This summer, have you received any parking tickets in this area for parking without a valid permit? 338/338
 146/338
 1 ☐ No - Do you know how much the fine is? _____
 2 ☐ Yes - How many? _____
8. How did you find out a parking permit was necessary in this area? 328/338
 3/7; 0/3
 1 ☐ Signs in area
 2 ☐ Word of mouth
 3 ☐ Media- Which? _____
 4 ☐ Other _____
9. Do you think \$3.00 is a fair price to pay for a parking permit? 336/338
 160/196
 1 ☐ Yes 2 ☐ No, What is a fair price? _____
10. Would you pay \$5.00 for a parking permit? 332/338
 1 ☐ Yes 2 ☐ No
11. Did you have any problems buying a parking permit? 337/338
 1 ☐ No
 2 ☐ Yes, explain _____
12. How many times have you bought a day use permit before? 319/338

13. Would you buy one again? 1 ☐ Yes 2 ☐ No 307/338
14. Did you know you could purchase a season permit? 335/338
 1 ☐ No
 2 ☐ Yes, why haven't you bought one? _____
15. Overall would you say this year's parking permit program is: 322/338
 1 ☐ A very good idea
 2 ☐ A good idea
 3 ☐ A bad idea
 4 ☐ A very bad idea
 5 ☐ Neither a good nor bad idea

(PLEASE TURN OVER)

16. During this summer, about how many days each month do you usually come to this particular beach area? 308/338
17. During the summer about how many days each month do you go to other beaches in Santa Cruz? 295/338
18. Why did you choose to come to this beach area instead of another beach area? 263/338
-
19. Are you. . . 1 ☐ Male? 2 ☐ Female? 327/338
20. Which one of the following categories best applies to you? 316/338
- 1 ☐ Employed 4 ☐ Retired
- 2 ☐ Student 5 ☐ Not currently employed
- 3 ☐ Homemaker 6 ☐ Other
21. Which of the following categories includes your age? 337/338
- 1 ☐ Under 16 4 ☐ 35-44
- 2 ☐ 16-24 5 ☐ 45-64
- 3 ☐ 25-34 6 ☐ 65 or over
22. Would you say your yearly household income, before taxes and including everyone in your household, was. . . 328/338
- 1 ☐ Less than \$5,000 a year
- 2 ☐ Between \$5,000 and \$15,000
- 3 ☐ Between \$15,001 and \$35,000
- 4 ☐ Over \$35,000
- 5 ☐ Don't know
23. Have you filled out this questionnaire before? 336/338
- 1 ☐ Yes
- 2 ☐ No
24. Other comments 45/338
-

Thank you for your cooperation. This information is confidential and for statistical purposes only.

Please return this questionnaire to the permit seller.

HE 18.5 .A37

MTA- 84-9

Rhyner, Geor

Parking per
project in

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of Transportation

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Statistical Programs
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Mile, Massachusetts 02142

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